



EXXON CHEMICALS
1400 PARK AVENUE
LINDEN, UNION COUNTY
NJD062037031

The Exxon Company, USA-Bayway Facility is located in Linden, Union County, New Jersey. The administrative offices are at 1400 Park Avenue, Linden. The facility is bordered by Route 278 to the north, the Rahway River to the south, Routes 1 and 9 to the west, and the Arthur Kill to the east. The facility is comprised of the refinery, research and development facilities, the West Side Chemical Plant, the East Side Chemical Plant, crude oil loading docks and storage, refinery storage facilities, the Tremley Tankfield, the 40 Acres Tankfield, and the Rahway Tankfield.

The refinery began operation in 1909 and chemical manufacturing began in 1920. The refinery processes about 110,000 (110 MB/SD) barrels per stream day of crude oil and 90 MB/SD of other purchased feedstocks into gasoline heating oil, asphalt, fuel oil, first and second generation petrochemicals and other standard petroleum products. The East Side Chemical Plant produces first and second generation petrochemicals and the West Side Chemical Plant manufactures complex organic chemicals. The Research and Development Complex conducts laboratory research and pilot plant studies on fuels, lubricants, specialty products, solar thermal energy, solar electric energy, laser fusion, electrochemical technology, and environmental controls.

The facility contains five landfills, ten surface impoundments, four above ground tanks, and three abandoned sludge pit/dumpsites. The landfills have no bottom liners and are capped incompletely. No permits exist for two of the landfills. The three abandoned sludge pit/dumpsites are unauthorized and little data exists on them. It is possible that Exxon used them to dispose of hazardous wastes. One of the ten surface impoundments contains hazardous waste. Another surface impoundment, which may have contained hazardous wastes, has allegedly been excavated and cleaned up. Although caustics are present in one of the above ground tanks, there does not seem to be a potential for any releases.

Three of the landfills are covered by NJPDES groundwater discharge permits. The surface impoundment which contains hazardous waste is covered by a NJPDES surface water discharge permit. Three of the landfills are RCRA regulated units. The two remaining landfills and the three abandoned sludge pit/dumpsites are not covered by any permits. Exxon is also regulated by several NJDEP air permits which regulate air discharges from the refinery operations and chemical plants.

Hazardous materials are manufactured, processed, formed, released, used, disposed of, and stored at this site. Organic chemicals and solvents used or produced in operations at Exxon include 1,2-dibromoethane, 1,2-dichloroethane, benzene, ethyl benzene, naphthalene, toluene, maleic anhydride, and phenol. Solvent recovery is practiced at the West Side Chemical Plant. Contaminated water from the East Side Chemical Plant

goes to the API Separator. Wastewater leaving the separators is sent to the biological treatment system and effluent from the treatment system is discharged to Morses Creek. Hazardous wastes disposed of at this site consist of API separator sludge and TEL sludges which are wastes of the petroleum-refining industry. Waste has been dumped at the site as long as this facility has been operating (approximately 78 years). Some of the wastes may also have been used as fill when this complex was built. There are several potential hazards at this site. There is a potential for releases to groundwater, surface water, air, and soil from the landfills, one surface impoundment, and the sludge pit/dumpsites. Since these units are unstably contained, there could be releases to the above media. Although Exxon has a regular emissions monitoring and maintenance schedule, they have had frequent discharges to air through leaks or malfunctioning equipment. Citizens in the vicinity of Exxon frequently complain of odors associated with Exxon. Violations are on file with NJDEP and the Middlesex County Health Department. According to the Linden Fire Department, Exxon has a history of fire and explosion and there is further potential for fire and explosion because of the materials found at this site. There is a potential for worker exposure if they contact any of the discharges to water, air, or soil. Unauthorized dumping was conducted at the landfills and sludge pit/dumpsites.

Soils in this area consist of soft silts and clays overlying a stratum of glacial till. Placement of fill at this site modified much of the soil to allow for construction of the refinery. The Brunswick Formation underlies this area. Groundwater is generally encountered three to five feet below the surface. It is generally not used for drinking water in this area. Linden buys their water from Elizabethtown Water Company. One private well, probably not used for drinking water exists within two miles of this site. Approximately 45 monitoring wells have been installed at this site.

I recommend this site be assigned a medium priority since there has been documented groundwater, air, and soil contamination and possible illegal dumping. Slightly elevated levels of metals and organics have been found at four of the landfills. Three of the landfills and the surface impoundment are being monitored under the NJPDES program. The RCRA Part B permit is currently under review. In addition, soil sampling should be conducted at these sites to determine the extent of contamination. If contaminant levels are elevated, clean-up should be initiated. The three abandoned sludge pit/dumpsites should have monitoring wells installed and soil sampling should be conducted.

Submitted by:

Christina Holstrom, HSMS IV
NJDEP-Bureau of Planning and Assessment



Preliminary Assessment

Exxon Chemicals
1400 Park Avenue
Linden City/Union County
New Jersey
NJD062037031

U.S. Environmental Protection Agency
Region II
Sites Notification
New York, NY 10007

Hours: 56



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION
01 STATE NJ 02 SITE NUMBER D06203703

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Exxon Chemicals		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 1400 Park Avenue			
03 CITY Linden City	04 STATE NJ	05 ZIP CODE 07036	06 COUNTY Union	07 COUNTY CODE 20	08 CONG DIST
09 COORDINATES LATITUDE 40 35 40 LONGITUDE 74 15 00		Block: 516 Lot: 1 Acreage: 2000 Acres Block: 517 Lot: 1			
10 DIRECTIONS TO SITE (Starting from nearest major road) From Trenton, take Route #1 & 9 North to Linden City. Turn right on Park Avenue. Facility Administrative offices are located on Park Avenue.					

III. RESPONSIBLE PARTIES

01 OWNER (if known) Exxon Company, USA		02 STREET (Business, mailing, residential) P.O. Box 222, 1400 Park Avenue			
03 CITY Linden City	04 STATE NJ	05 ZIP CODE 07036	06 TELEPHONE NUMBER (201) 474-7585		
07 OPERATOR (If known and different from owner)		08 STREET (Business, mailing, residential)			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER		
13 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL (Agency name) <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER (Specify) <input checked="" type="checkbox"/> G. UNKNOWN					

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE (RCRA 103) DATE RECEIVED: MONTH DAY YEAR ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 5/29/86 <input type="checkbox"/> NO MONTH DAY YEAR		02 BY (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input checked="" type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER (Specify) CONTRACTOR NAME(S):			
02 SITE STATUS (Check one) <input checked="" type="checkbox"/> A. ACTIVE <input type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN		03 YEARS OF OPERATION 1909 Present <input type="checkbox"/> UNKNOWN BEGINNING YEAR ENDING YEAR			
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED API separator sludge (K051), Tetraethyl lead sludge (P110), caustics (D002), organics. Attachment A					

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Potential releases to ground and surface water, air, soil
Attachment A

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on site available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT Joan	02 OF (Agency/Organization) NJDEP/DHWM/BFO	03 TELEPHONE NUMBER (201) 669-3960
04 PERSON RESPONSIBLE FOR ASSESSMENT Christina Holstrom	05 AGENCY NJDEP	06 ORGANIZATION DHWM/BPA
	07 TELEPHONE NUMBER (609) 633-2215	08 DATE 9/3/87 MONTH DAY YEAR



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D062037031

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply) <input checked="" type="checkbox"/> A. SOLID <input type="checkbox"/> B. POWDER, FINES <input checked="" type="checkbox"/> C. SLUDGE <input type="checkbox"/> D. OTHER _____ (Specify) <input type="checkbox"/> E. SLURRY <input checked="" type="checkbox"/> F. LIQUID <input type="checkbox"/> G. GAS	02 WASTE QUANTITY AT SITE (Measurements of waste quantities must be made on drums) TONS <u>see</u> CUBIC YARDS <u>Attachment</u> NO. OF DRUMS <u>A</u>	03 WASTE CHARACTERISTICS (Check all that apply) <input checked="" type="checkbox"/> A. TOXIC <input checked="" type="checkbox"/> B. CORROSIVE <input type="checkbox"/> C. RADIOACTIVE <input type="checkbox"/> D. PERSISTENT <input checked="" type="checkbox"/> E. SOLUBLE <input type="checkbox"/> F. INFECTIOUS <input checked="" type="checkbox"/> G. FLAMMABLE <input checked="" type="checkbox"/> H. IGNITABLE <input checked="" type="checkbox"/> I. HIGHLY VOLATILE <input type="checkbox"/> J. EXPLOSIVE <input checked="" type="checkbox"/> K. REACTIVE <input type="checkbox"/> L. INCOMPATIBLE <input type="checkbox"/> M. NOT APPLICABLE
--	--	--

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown		waste was disposed of in
OLW	OILY WASTE	unknown		landfills and sludge pits
SOL	SOLVENTS	unknown		
PSO	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	unknown		manufactured at plant
IOC	INORGANIC CHEMICALS			
ACO	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/ DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SLU	tetraethyl lead sludge	78002	disposed of in landfill	unknown	
	API Separator sludge	999	and sludge pits	"	
OCC	1,2-Dibromoethane	106934	manufactured at plant	"	
OCC	1,2-Dichloroethane	1300216	"	"	
OCC	Benzene	71432	"	"	
OCC	Ethyl benzene	100414	"	"	
OCC	Napthalene	91203	"	"	
OCC	Toluene	108883	"	"	
OCC	Maleic anhydride	108316	"	"	
OCC	Phenol	108952	"	"	
			"	"	
			"	"	
			"	"	
			"	"	
			"	"	
			"	"	
			"	"	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state logs, sampling analysis, reports.)

Attachment A,B,C



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D062037031

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☒ OBSERVED (DATE: 4/23/86) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION There was observed groundwater contamination from three of the five landfills. There is a potential for groundwater contamination from all of the landfills because of their unstable containment. Only three of the landfills are RCRA regulated. There is a potential for groundwater (Continued on attached sheet.)

01 ☒ B. SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION There is a potential for surface water contamination from the landfills and the abandoned sludge pits because of their unstable containment. Morse's Creek, Piles Creek, the Rahway River, and the Arthur Kill either run through the site or are adjacent to it. There is a potential for (continued on attached sheet)

01 ☒ C. CONTAMINATION OF AIR 02 ☒ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION There have been documented release to air from the refinery and chemical plants. Although they have an emissions monitoring and maintenance program, there is further potential for releases from the refinery, chemical plants, landfills, and abandoned sludge pit/dumpsites. Attachment A & E

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS 02 ☒ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION Linden Fire Department has regularly responded to fires and explosions at Exxon. There is potential for additional fires and explosions since ignitable and flammable materials are found at this site. Linden Fire Dept., Attachment A, B, C

☒ E. DIRECT CONTACT 02 ☒ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION There is potential for employees to contact discharges to soil, ground and surface water, or air. There is no potential for the public to come in contact with these materials since the facility is fenced and guarded. Attachment C

01 ☒ F. CONTAMINATION OF SOIL 02 ☒ OBSERVED (DATE: 5/29/86) ☒ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: (A/E/86) 04 NARRATIVE DESCRIPTION Soil contamination was observed at three of the landfills and there is a potential for contamination at the other landfills and the abandoned sludge pits because they have no bottom liners. There is also a potential for soil contamination at the surface impoundment because it is old and may be leaking into the soil. Attachment C&D

01 ☐ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION There are no public supply wells within three miles of the site. Linden receive their drinking water from the Elizabethtown Water Co. so there is no potential for drinking water contamination. Linden DPW

01 ☐ H. WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION There is a potential for worker exposure/injury due to the unstable containment of wastes at the landfills and abandoned sludge pits. Attachment A

01 ☐ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION There is no potential for population exposure since the facility is fenced and guarded and there is no potential for drinking water contamination. Attachment A

(continued from: Groundwater Contamination)

contamination at the surface impoundment if it is leaking and at the three abandoned sludge pits due to their unstable containment.

Attachment A.

(continued from: Surface Water Contamination)

contamination from the surface impoundment if it is leaking. One of the aboveground tanks discharges into a shallow aquifer and could release to surface water.

Attachment A&D



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE NJ 02 SITE NUMBER D062037031

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

There is a potential for damage to flora from contaminated soil at this site.

Attachment C&F

01 ☒ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include numbers of species)

There is a potential for damage to fauna at the landfills if birds are feeding on contaminated items or if contaminants are entering surface water and effecting aquatic organisms.

Attachment C&F

01 ☒ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

If there are elevated levels of heavy metals present at this site, they could accumulate in the food chain.

Attachment C&F

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES 02 ☒ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
(Spills/runoff/sludging/seepage/dumping)
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

The unstable containment of wastes was observed at unlined landfills and sludge pits.

Attachment A&F

01 ☒ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

There is a potential for offsite property damage from groundwater contamination.

Attachment A

01 ☒ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

There is a potential for contamination of sewers and storm drains through runoff from the landfills.

Attachment A

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No permits exist for two of the landfills or the abandoned sludge pits/dumpsite.

Attachment A&D

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

Although Exxon states that hazardous wastes exist only in the landfills, one surface impoundment, and possibly the abandoned sludge pits, it is possible that the other impoundments contain hazardous waste and it may be necessary to investigate them.

V. SOURCES OF INFORMATION (See source references, e.g., state files, lab reports, records)

NJDEP-BPA files, RFA
Joan NJDEP-BFO-Metro

PRELIMINARY ASSESSMENT FILE SEARCH

NJDEP

DIVISION OF WATER RESOURCES:

Central Files - 7-21-87 2-0400 FILE

- A. Enforcement _____
- B. Groundwater _____
- C. Other _____

DIVISION OF WASTE MANAGEMENT:

Metro - 201 669-3960, JOAN, 8-12-87 - FILE # 200906

- A. HSMA ^{Central Files} MIKE BELVISO 7-21-87 No FILE _____
- B. Enforcement _____
- C. Solid Waste _____

ENVIRONMENTAL QUALITY:

- A. Air Pollution 9/15/87 Metro 201 669-3935 Fred Dowd - File _____
- B. Pesticides _____
- C. Other _____

DIVISION OF FISH AND GAME:

OFFICE OF SCIENCE AND RESEARCH:

- A. Industrial Survey _____
- B. Other _____

N.J. DEPARTMENT OF HEALTH:

LOCAL AUTHORITIES:

- A. Health Department _____
- B. Town or County Clerk _____

LINDEN FIRE DEPT. 9/18/87 201 486-2700 - File

UNITED STATES GOVERNMENT:

- A. EPA _____
- B. Other _____

EXXON

Bayway Refinery



Preliminary Assessment

for

RCRA Corrective Action Program

Attachment A

N. J. Department of Environmental Protection
Divisions of Environmental Quality
Waste Management
Water Resources

Prepared by the Division of Waste Management
Bureau of Hazardous Waste Planning &
Classification
November, 1985

**Exxon Company, USA - Bayway Facility
Linden, Union County, New Jersey**

The Exxon Company, USA - Bayway Facility is located in the City of Linden, Union County, New Jersey. The Administrative offices are located at 1400 Park Ave.

The entire Bayway facility is comprised of the refinery, research and development facilities, the West Side Chemical Plant, the East Side Chemical Plant, Crude Oil Loading Docks and storage east of the New Jersey Turnpike, refinery storage facilities, the Tremley Tankfield, the 40 Acres Tankfield and the Rahway Tankfield. This area stretches from the Rahway River up to Route 278, and between Route 1 & 9 and the New Jersey Turnpike. Research and Development facilities are located on the other side of Route 1 & 9 and the Crude loading area is located on the east side of the New Jersey Turnpike. This complex occupies more than 2000 acres.

The refinery began operation in 1909 (it was built in 1908) and chemical manufacturing began in 1920. At this time the refinery processes about 110,000 barrels per stream day (110 MB/SD) of crude oil and 90 MB/SD of other purchased feedstocks into gasoline, heating oil, asphalt, fuel oil, first and second generation petrochemicals and other standard petroleum products. These capacities reflect a downsizing program in 1982 to reduce the capacity of the refinery. The East Side Chemical Plant produces first and second generation petrochemicals and the West Side Chemical Plant manufactures complex organic chemicals. Lube oil manufacturing processes at the refinery were discontinued as part of the refinery downsizing program of 1982. The Research and Development Complex conducts laboratory research and pilot plant studies on fuels, lubricants, specialty products, solar thermal energy, solar electric energy, laser fusion, electro-chemical technology and environmental controls.

All crude oil arrives by tanker. The tanker docking facilities are located on the Arthur Kill and can handle two 525,000 barrel tankers simultaneously. The off-loading facility can handle 30,000 barrels per hour of crude. Storage at this site can handle 4,000,000 barrels of crude.

Regulatory Status

Exxon Company, USA has three NJPDES Discharge to Surface Water Permits. NJ0026662 covers the Rahway Separators East and West discharges to the Rahway River. NJ0026671 covers the Forty Acre Tankfield Separator discharge to Marshes Creek. NJ0001511 covers all discharges from the Tremley Tankfield, the refinery, the West Side Chemical Plant and the East Side Chemical Plant. These discharges come from the Upper Tremley Tankfield Separator, the refinery's wastewater treatment plant and various non-contact cooling water discharges from the refinery and the Chemical Plants.

Discharge to ground water permits (also NJ0026671, NJ0026662 and NJ0001511) cover the Rahway Separators, the 40 Acre Tankfield Separator, the Upper Tremley Tankfield Separator, the wastewater treatment plant and the refinery's landfarm (the RCRA Unit). NJ0054348 is a ground water permit which covers the East Side Chemical Plant's Esen Basin (the surface water discharge from the East Side Chemical Plant is covered by NJ0001511).

Exxon Company, USA also holds several NJDEP air permits for discharges that result from the many manufacturing processes. These air discharges come from product, not waste.

Exxon has requested that Morses Creek (which runs through the heart of the refinery) be classified not as a surface water body, but as a large outfall ditch. Since many outfall pipes discharge into this creek, Exxon is asking that the creek be monitored rather than each outfall pipe. Exxon has been utilizing in-stream sampling where the creek discharges into the Arthur Kill. This discharge sampling point would cover all other discharges into the creek (including all of the non-contact cooling water discharges from the refinery and chemical plants). The only discharge into the creek that is monitored at the outfall pipe is the wastewater treatment plant. So far, there have been no major problems in complying with permit limitations at any of the surface water sampling points in the Bayway Complex.

The Bayway Complex has been in existence for 77 years. The officials at Exxon admit that waste dumping at the complex has taken place for 77 years. Many buildings, units and process plants are built on waste dump areas, spill areas, etc. The Environmental Manager states that there are no releases from these areas. However, Exxon has no monitoring data to back up this statement. Exxon officials have also stated that if a release occurs, it will end up in Morses Creek, which is monitored at its outfall to the Arthur Kill. Exxon claims that there is a thick silty-clay layer under the entire complex so that any release would remain in the upper-most aquifer and would not reach the Brunswick aquifer where it could move off-site. Exxon claims that all shallow ground water discharges into Morses Creek. Any contaminants discharged to the Creek would be covered under their surface water discharge permit NJ0001511 and would be detected at the in-stream sampling point. Thus any contaminated ground water would be a permitted surface water discharge.

Exxon also claims that 19 of these 22 solid waste management units are not covered by the 1984 RCRA Amendments. In their 3007 Request (submitted to the EPA) they identified only 3 units: the landfill beneath the landfarm, the landfill west of the landfarm and the landfill east of the landfarm. Exxon believes that the term "Facility" in the State and Federal Regulations refers only to the one RCRA regulated unit (the landfarm) and not the whole Bayway Complex. Therefore, they claim that only those 3 landfills in the vicinity of the landfarm are Solid Waste Management Units covered under the 1984 Amendments. They claim that the court case involving this issue has not been settled (American Petroleum Institute vs. EPA).

Findings:

1. There has been a documented release to ground water from three non-RCRA regulated Landfills. The documentation is the results of the Appendix VIII sampling that was required by NJDEP. (Results were submitted on 4/23/86). Additional specifics can be found in the attached summaries for each SWMU. (The landfills are identified as #1,2,3).
2. There is a potential for release from the following SWMUS into the following media:

<u>SWMU</u>	<u>Media</u>	<u>State Regulatory Documents</u>
#4 Water Front Landfill	G.W., S.W.	None
#5 City of Linden Landfill	G.W., S.W., air	NJPDES/DGW
#8 Rahway Separator East	G.W., S.W.	NJPDES/DGW & DSW
#9 Rahway Separator West	G.W., S.W.	NJPDES/DGW & DSW
#10 40 Acres Tankfield Separator	G.W., S.W.	NJPDES/DGW & DSW
#11 Lower Tremley Tankfield Separator	G.W.	None
#12 Upper Tremley Tankfield Separator	G.W., S.W.	NJPDES/DGW & DSW
#14 Esen Basin	G.W., S.W.	NJPDES/DGW & DSW
#15 Wastewater Treatment Plant	S.W., G.W., air	NJPDES/DGW & DSW
#20 Tremley Tankfield Sludge	G.W., S.W., air	None
#21 Abandoned Pitch Area	G.W., S.W.	None
#22 Dredged Sludge from Mores Creek	G.W., S.W., air	None
#13 Treatment Impoundment Tremley Tankfield	G.W.	None
#6 West Separator	S.W.	NJPDES/DGW
#7 East Retention Basin	S.W.	NJPDES/DGW
#16 Equalization Tank #136	S.W.	None

See attached summaries for each SWMU for more information.

3. There is no potential for release to any media from the following SWMUS:

- #17 Stormwater Tank #519
- #18 Caustic Tanks near WWTP (2)
- #19 Caustic Tanks near Morses Creek & Arthur Kill

Again, see attached summaries for each SWMU for more information.

Recommendations:

<u>SWMU</u>	<u>RI Needed</u>	<u>Covered by NJPDDES</u>
Landfill beneath Landfarm	yes	yes
Landfill East of Landfarm	yes	no
Landfill West of Landfarm	yes	no
Water Front Landfill	yes	no
City of Linden Landfill	yes	yes
West Separator *	no	yes
East Separator *	no	yes
Rahway Separator East	yes	yes
Rahway Separator West	yes	yes
40 Acre Tankfield Separator	yes	yes
Lower Tremley Tankfield Separator	yes	no
Upper Tremley Tankfield Separator	yes	yes
Treatment Impoundment-Tremley Tankfield	yes	no
Esen Basin	yes	yes
Wastewater Treatment Plant	yes	yes
Equalization Tank #136 *	no	no
Stormwater Tank #519	no	no
Caustic Tanks near WWRP	no	no
Caustic Tanks near Arthur Kill	no	no
Tremley Tankfield Sludge Pits	yes	no
Abandoned Pitch Area	yes	no
Dredged Sludge	yes	no

These units have a potential to release to surface water by a bypass.
An RI is not needed for a bypass.

EPA		POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT PART 1 - SITE INFORMATION AND ASSESSMENT		I. IDENTIFICATION 01 STATE 02 SITE NUMBER	
II. SITE NAME AND LOCATION					
01 SITE NAME (Name, location, or identification number of site) Exxon Bayway Complex		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 1400 PARK AVE.			
03 CITY Linden		04 STATE NJ	05 ZIP CODE 07036	06 COUNTY UNION	07 COUNTY CODE 08 CONG DIST
09 COORDINATES LATITUDE _____		LONGITUDE _____		BLOCK LOT ACREAGE	
10 DIRECTIONS TO SITE (Starting from nearest public road) Site is located off of Route 139 in Linden. Park Ave. crosses Route 139. Facility Administrative offices are located on Park Ave.					
III. RESPONSIBLE PARTIES					
01 OWNER of property Exxon Company, USA		02 STREET (Industrial, Mining, Residential) P.O. Box 222 1400 Park Ave.			
03 CITY Linden		04 STATE NJ	05 ZIP CODE 07036	06 TELEPHONE NUMBER 1201 474-7585	
07 OPERATOR (If owner and operator are different) W.L. Tactsch Coordinator		08 STREET (Industrial, Mining, Residential) P.O. Box 222 1400 Park Ave.			
09 CITY Linden		10 STATE NJ	11 ZIP CODE 07036	12 TELEPHONE NUMBER 1201 474-7585	
13 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER _____ <input type="checkbox"/> G. UNKNOWN					
14 USE OF SITE (Check one) <input type="checkbox"/> A. RCRA 3001 DATE RECEIVED _____ <input type="checkbox"/> B. UNCONTROLLED WASTE SITE (RCRA 1001) DATE RECEIVED _____ <input type="checkbox"/> C. NONE					
IV. CHARACTERIZATION OF POTENTIAL HAZARD					
01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 5/29/86 <input type="checkbox"/> NO		02 BY (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input checked="" type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER _____ CONTRACTOR NAME(S): _____			
03 SITE STATUS (Check one) <input checked="" type="checkbox"/> A. ACTIVE <input type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN		04 YEARS OF OPERATION 1909 Present <input type="checkbox"/> UNKNOWN			
05 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED Hazardous: API Separator Sludges (KOSI) TEL Sludge (P110) NonHazardous: Refinery Garbage, Trash, Demolition, oily sludges, Bio sludges, filter cake, catalyst unloading Tank Bottoms, coke					
06 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION Potential for release to groundwater and surface water. Ground and surface water in this area is not used for drinking water. There is potential for Environmental Harm but not Harm to Population.					
V. PRIORITY ASSESSMENT					
01 PRIORITY FOR INSPECTION (Check one) <input checked="" type="checkbox"/> A. HIGH <input type="checkbox"/> B. MEDIUM <input type="checkbox"/> C. LOW <input type="checkbox"/> D. NONE					
VI. INFORMATION AVAILABLE FROM					
01 CONTACT KARI VETTER		02 OF (Agency or person) NJDEP - DWR - BGLWQM		03 TELEPHONE NUMBER 1609 1292-0424	
04 PERSON RESPONSIBLE FOR ASSESSMENT KARI VETTER		05 AGENCY NJDEP	06 ORGANIZATION Water Resources	07 TELEPHONE NUMBER 1609 1292-0424	08 DATE 6/13/86

2.0 FACILITY DESCRIPTION

2.1 PRODUCTION OPERATION

The Exxon Corporation operates a petroleum refinery and chemical manufacturing operation in Linden, New Jersey. The facility is commonly known as the Exxon Bayway Refinery. The refinery complex occupies about 2,000 acres of land on the west bank of the Arthur Kill. The refinery began operation in 1909 and chemical manufacturing was begun in 1920. At the present time the refinery processes about 110,000 barrels per stream day (110 MB/SD) of crude oil and 90 MB/SD of other purchased feedstocks into gasoline, heating oil, asphalt, fuel oil, first and second generation petrochemicals and other standard petroleum products. These capacities reflect the results of a refinery downsizing program undertaken in the fall of 1982 to reduce the capacity of the refinery in response to changing market conditions.

Figure 1 presents a flow plan for the Bayway Refinery. The flow plan illustrates both the complexity of the processing operations and the variety of petroleum, petrochemical and organic chemical products produced at the site. Conceptually, the Exxon facility may be thought of as encompassing three major production operations; the East Side Chemical Plant which produces first and second generation petrochemicals; the West Side Chemical Plant which manufactures complex organic chemicals; and the crude oil refining operations which include the remaining production areas.

In addition to production areas a large portion of the Bayway site is utilized for tank farm storage of products and raw materials. Exxon also operates a separate chemical manufacturing plant in Bayonne, New Jersey. Process wastewaters from some manufacturing processes at the Bayonne chemical plant are trucked to the Bayway site where they are treated and discharged.

Exxon, until recently, operated lube oil manufacturing processes at the Bayway site. These operations were discontinued as part of the refinery downsizing program in the fall of 1982. There are no present plans to reactivate these operations.

At the present time, Exxon Research and Engineering Company, a wholly

owned subsidiary of the Exxon Corporation, operates its principal research center at the Bayway site in Linden. The research complex conducts laboratory research and pilot plant studies on fuels, lubricants, specialty products, solar thermal energy, solar electric energy, laser fusion, electrochemical technology and environmental controls. Exxon intends to transfer the research center operations to Clinton, New Jersey during the summer of 1983. For this reason the wasteloads associated with the research operation will not be addressed in this report.

The following is a brief description of each of the three major processing areas:

Refinery Operation

The Bayway Refinery uses the following unit processes:

- Desalting
- Atmospheric Distillation
- Vacuum Distillation
- Fluid Catalytic Cracking
- Asphalt Production
- Reforming
- Desulfurization/Sulfur Recovery
- Alkylation

All crude oil arrives at the Bayway Refinery by tanker. The tanker docking facilities located on the Arthur Kill can handle two 525,000 barrel tankers simultaneously. The off-loading facility can handle crude oil at the rate of 30,000 barrels per hour. Storage for approximately 4,000,000 barrels of crude oil is available.

The crude oil as received contains approximately 3% bottom sediment and water. Dewatering is accomplished in the tank farm area. The removed water is discharged to the slop oil system.

All crude oil received at the refinery is desalted. Desalting is an extraction process which uses water to remove inorganic salts from the organic phase. The aqueous and organic phases are separated. Following separation the aqueous phase is discharged to the facility waste treatment system. The present desalter capacity is 110,000 barrels per stream day (BPSD).

Atmospheric distillation is accomplished in the No. 7 Pipe Still. This unit is shown in the upper left portion of Figure 1. The present operating capacity of this unit is 120,000 BPSD. This includes a crude oil feed of 110,000 BPSD and a 10,000 BPSD naptha recycle stream.

Still bottoms from the Atmospheric Pipe Still are sent to the No. 7 Vacuum Pipe Still for further separation of gas oils and asphalt residues. Present operating capacity of this unit is 66,000 BPSD.

The No. 2 Fluid Catalytic Cracking Unit is the largest catalytic cracking unit in the free world. Operating capacity of the cracker is 145,000 BPSD. This includes 120,000 BPSD of fresh feed and 25,000 BPSD of recycled gas oil. Since the implementation of the refinery downsizing program, gas oil output from the Pipe Stills has been reduced to 40,000 BPSD. The shortfall between distillation output and cracker feed requirements is made up through the purchase of 80,000 BPSD of gas oil. This represents a significant change in typical refinery operations. The catalytic cracking capacity of most refineries is usually less than the crude oil distillation capacity since, (1) the light hydrocarbons separated by distillation do not go to the cracking process, and (2) gas oil is not normally purchased for additional refining.

Exxon operates two desulfurization units at the Bayway facility. DSU-1 has a capacity of 50,000 BPSD and is used to desulfurize the gas oil feed to the catalytic cracker. DSU-2 has a capacity of 66,000 BPSD and is used to desulfurize the heating oil and gasoline components from the catalytic cracker.

Reforming is a catalytic process in which the molecular structure of naphthas is rearranged to form products of higher octane number largely through the formation of aromatic compounds. Reformer capacity at the Bayway Refinery is 25,000 BPSD.

Alkalation involves the catalyzed union of an olefin with an aromatic or paraffinic hydrocarbon. It is based on the reactivity of the tertiary carbon of isobutane with olefins, such as propylene, butylenes and amylenes. The product alkylate is a mixture of saturated, stable isoparaffins which become a

principal component in high octane gasoline. Alkalation capacity at the Bayway Refinery is 8,500 BPSD.

East Side Chemical Plant Operations

At the East Side Chemical Plant (ESCP), the following organic chemicals are manufactured:

- Ethylene
- Propylene
- Isobutylene
- Methyl Ethyl Ketone
- Acetone
- Secondary Butanol
- Methyl Isobutyl Ketone
- Isophorone
- Mesityl Oxide

The products listed above are first and second generation petrochemicals as defined in 40 CFR 419.51 (f). The manufacture of these products is considered to be a petrochemical operation under the subcategorization scheme included in Effluent Limitations Guidelines established for the Petroleum Refining Point Source Category. The term "petrochemical operations" is specifically defined as follows:

The term "petrochemical operations" shall mean the production of second generation petrochemicals (i.e., alcohols, ketones, cumene, styrene, etc.) or first generation petrochemicals and isomerization products (i.e., BTX, olefins, cyclohexane, etc.) when 15% or more of refinery production is as first generation petrochemicals and isomerization products.

Production operations at the ESCP meet this definition.

(Information has been requested from Exxon which will define the generic processes used to manufacture these products and identify the present production levels for each product. This information will be included when it is received.)

West Side Chemical Plant

At the West Side Chemical Plant (WSCP), Exxon Chemical Company U.S.A. manufactures complex organic chemicals from petrochemical feedstocks which are used primarily as lubricant and fuel additives. The WSCP manufactures and blends:

Vistanex J
LM Vistanex
Nonyl Phenol
Nonyl Phenol Sulfide
Zinc Organic Salts
Complex Organic Aminated Succinic Anhydride
Dodecyl Phenol
Magnesium, Barium or Calcium Organic Salts
Ethylene/Vinyl Acetate Copolymer
Phospho-Sulfurized Organic Compound
Muriatic Acid

A brief discussion of each product follows:

Vistanex J (poly isobutylene) - This product is manufactured by the catalytic polymerization of butane. It is produced as an intermediate for use in the manufacture of Complex Organic Aminated Succinic Anhydride.

LM Vistanex (poly isobutylene) - This product is a food grade formulation of Vistanex J. It is used as a surgical adhesive and as an ingredient in chewing gum. It is manufactured by the catalytic polymerization of butane.

Nonyl Phenol - Manufactured by reacting phenol and nonene. Used as an intermediate in the manufacture of Magnesium, Barium and Calcium Organic Salts.

Nonyl Phenol Sulfide - Manufactured by reacting nonyl phenol and sulfur dioxide. Produced as an intermediate product for the manufacture of Magnesium, Barium and Calcium Organic Salts.

Zinc Organic Salts -

Complex Organic Aminated Succinic Anhydride - Manufacture is done by first chlorinating Vistanex J, and then reacting the intermediate formed with Malaic anhydride and polyamine. This material is used as a dispersant in lubricating oils.

Dodecyl Phenol -

Magnesium, Barium or Calcium Organic Salts - Produced by sulfonation of previously formed intermediates. Materials produced are used as lube oil additives to inhibit foaming.

Ethyl/Vinyl Acetate Copolymer - Produced by the polymerization of ethylene and vinyl acetate. The product is used as an anti-waxing agent.

Phospho-Sulfurized Organic Compound - Material is used as an anti-oxidation and anti-corrosion additive for lubricating oils.

Muriatic Acid - Produced by the water scrubbing of HCl containing gas streams.

In general, West Side Chemical Plant operations are used to produce organic chemical additives for petroleum products. Most reactions are high pressure, high temperature, solvent based reactions. Solvents used include: hexanes, mixed C4 hydrocarbons, ethylene glycol and toluene. Solvent recovery is practiced. No chlorinated solvents are used.

2.2 WATER USAGE/MATERIAL BALANCE

The Bayway Refinery encompasses a series of reserviors near the center of the complex. The reserviors overflow to Morses Creek which carries water generally south and east until it discharges to the Arthur Kill. Water levels in various parts of this system are controlled by a series of five dams. These dams prevent the backflow of brackish water from the Arthur Kill up into the reserviors.

A summary of the Bayway Refinery's water usage is presented in Table 2. Bayway utilizes intake water from three sources: (1) Fresh, non-potable water from the reservior ponds for use as boiler feed water, (2) brackish, non-potable water for once-through cooling water, and (3) potable water purchased from the local municipality. Potable water usage averages approximately 700,000 GPD and is used only for sanitary and cafeteria purposes. Boiler feed water drawn from the fresh water reserviors averages 800,000 GPD. The largest volume of water is used for process and once-through non-contact cooling. Water drawn from the Arthur Kill averages 152 MGD. All non-contact cooling water is discharged to the "condenser canal" which ultimately discharges to Morses Creek.

2.3 WASTEWATER TREATMENT

A flow plan for the Bayway Refinery Wastewater Treatment System is shown in Figure 2. This figure was provided by Exxon during the plant inspection.

Contaminated waters from the ESCP, the eastern portion of the refinery and the central portion of the refinery are combined and sent to the API separator area. The separator area has two API separators, each having multiple parallel channels. Four separator channels treat wastewater from the areas listed above and a portion of the west refinery process wastewater. An additional

TABLE 2

WATER BALANCE SHEET
(Annual Average Flows)

Company Name Exxon
 Plant Name Bayway Refinery
 Plant Location (city or state) Linden, NJ
 Permit No. NJ0001511

I WATER SOURCES

Item	Volume gal/day
Surface Water	<u>162 MGD</u>
Well Water	_____
Potable Water (municipal)	<u>0.7 MGD</u>
Other (list):	_____
_____	_____
_____	_____
_____	_____
TOTAL	<u>163 MGD</u>

WATER USES

Item	gal/day
Process Water	<u>9.3 MGD</u>
Once-through Cooling	<u>152 MGD</u>
Cooling Tower Makeup	_____
Sanitary	<u>0.7 MGD</u>
Boiler Makeup	<u>0.8 MGD</u>
Other: (list)	_____
_____	_____
_____	_____
TOTAL	<u>163 MGD</u>

III WASTEWATER SOURCES

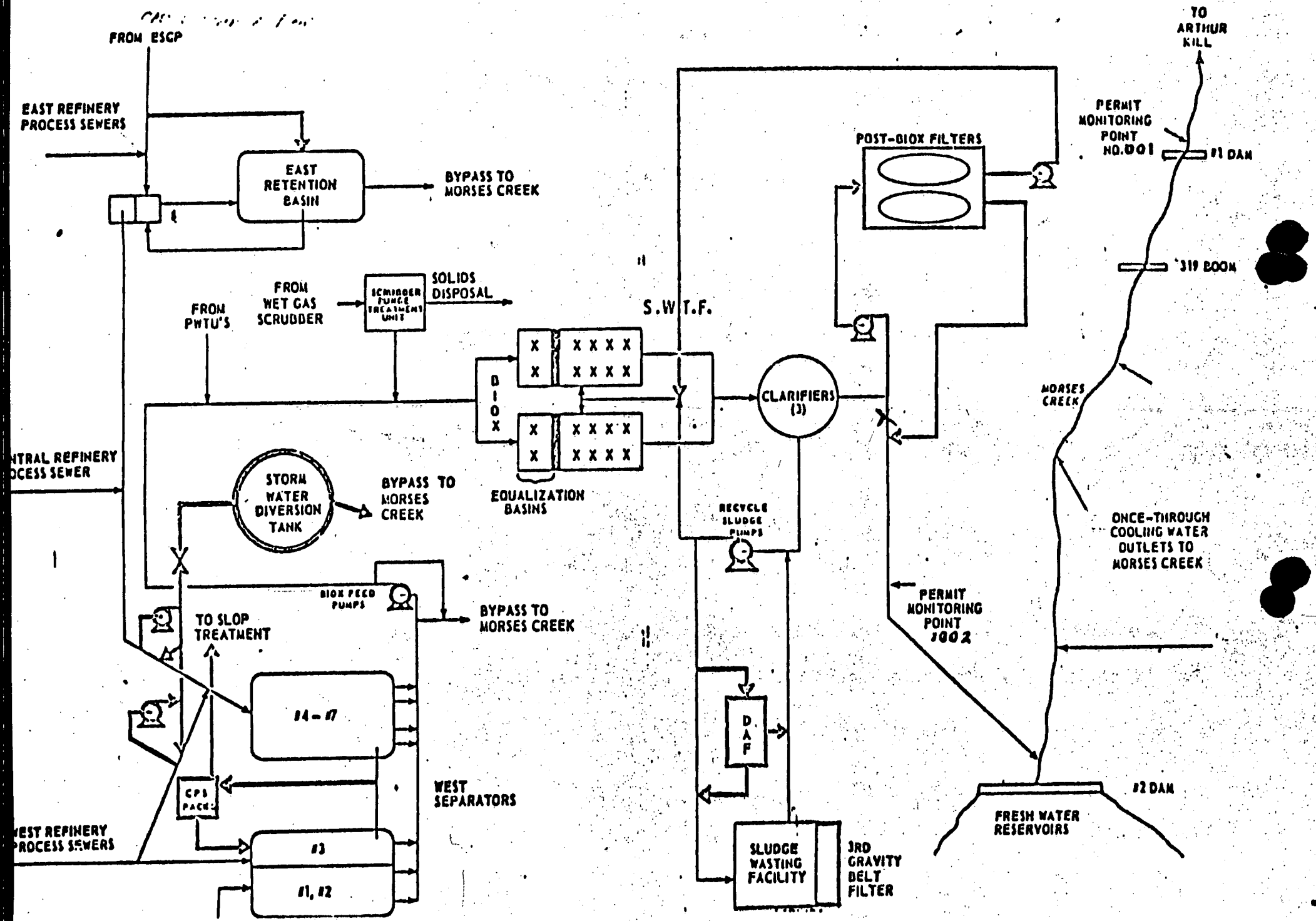
Item	gal/day
Process Contact	<u>9.3 MGD</u>
Contact Cooling Water	_____
Air Pollution Equip.	_____
Steam Condensates	_____
Boiler Blowdowns	<u>unk</u>
Equipment Washes	_____
Non-Contact Cooling	<u>152 MGD</u>
Cooling Tower Blowdown	_____
Other (list):	_____
_____	_____
_____	_____
_____	_____
TOTAL	_____

IV WASTEWATER DISCHARGES

Item	gal/day
A. Process (Dry weather)	
Direct Discharge (treated)	<u>9.3 MGD</u>
Direct Disch. (untreated)	<u>151 MGD</u>
Indirect Discharge (to POTW)	_____
Deep well	_____
Evaporation	<u>1 MGD</u>
Groundwater	_____
Hauling	_____
Ocean Dumping	_____
Other (list):	_____
_____	_____
TOTAL	<u>162 MGD</u>
B. Sanitary	
Direct Discharge w/process	_____
Direct Discharge, separate	_____
Indirect	<u>0.7 MGD</u>
Other: (list)	_____
_____	_____
TOTAL	<u>163 MGD</u>
C. Stormwater	
Disch. With Process Water	<u>2 MGD (1)</u>
Separate Storm Sewers	<u>10 MGD (1)</u>
TOTAL	<u>12 MGD (1)</u>

(1) Flow rated during storm event
 (Total drainage area of 9 square
 miles)

BAYWAY CONSERVATION FLOW PLAN



separator channel is used for the remaining west refinery wastewater. Another separator channel is dedicated to the raw wastewater from the WSCP. All wastewater leaving the separators is combined and sent to the biological treatment system.

The biological treatment system consists of two parallel equalization and activated sludge treatment trains. A mixed liquor suspended solids level of 6,000 mg/l is maintained. Aeration is provided using fixed surface aerators. Secondary solids separation is accomplished using three clarifiers. Underflow solids are returned to the aeration basins. Excess biological solids are concentrated using a dissolved air flotation unit. The concentrated solids are dewatered using a gravity belt filter and disposed of at the Edgeboro Landfill. The overflow from the secondary clarifiers is sent to a mixed media filtration system for final polishing. Backwash from the filters is returned to the aeration basin.

The effluent from the treatment system is discharged (discharge 002) to Morses Creek at a point immediately downstream of the No. 2 dam. Once through cooling water is discharged to Morses Creek at various points between the No. 2 and No. 1 dams. the overflow from the No. 1 dam to the Arthur Kill represents the final combined discharge (discharge 001) of all non-sanitary discharges from the Bayway Refinery complex.

All sanitary flows from the facility, which includes cafeteria facilities, are handled in a separate collection system and sent to the Linden Roselle Sewage Authority.

2.4 HAZARDOUS AND TOXIC WASTES

The quantity of hazardous and toxic materials used or stored at the Bayway facility is difficult to define in the absence of a precise definition of what specific materials should be included under that classification. In the broadest definition, almost all raw materials and products at the site are hazardous by virtue of their ignitability characteristics. A more restrictive definition was developed by the NJDEP in 1981 to conduct an Industrial Survey project. This study required New Jersey industries to submit a Selected Substances Report. All substances which were manufactured, processed, formed,

released, used, disposed of or stored at the plant site, which also appeared on a list developed by NJDEP had to be reported under this program.

The substances which were reported by the Bayway Refinery included the following:

- 1,2-Dibromoethane
- 1,2-Dichloroethane
- Benzene
- Ethyl Benzene
- Napthalene
- Toluene

Exxon submitted a separate report for the West Side Chemical Plant (WSCP) which listed the following additional substances:

- Maleic Anhydride
- Phenol

2.5 PERMIT STATUS

On July 27, 1979 Exxon submitted a permit application for the renewal of the Bayway NPDES permit. On March 27, 1981 Exxon submitted a tabulation of Organic Toxic Pollutants for the combined refinery effluents as required by 40 CFR 122.53(d)(7)(ii) and 40 CFR 122.64. This data is presented as Appendix A.

A "first round" NPDES permit was issued to Exxon for the period of January 31, 1975 to January 31, 1980. Since January 1980 the limits from this permit have been extended on an interim basis pending the issuance of a new permit.

The January 31, 1975 permit included an allocation for the WSCP and Research Center. The Region II engineer who finalized the permit determined that these operations represented "Fundamentally Different Factors" from those considered by EPA in developing Petroleum Refining Subcategory Guidelines. These permit limitations are presented in Table 3 and 4, see section 3.2.4.

During January 1977 the NJDEP noted that the decision as to whether fundamentally different factors existed at the Bayway Refinery was one which, according to EPA Regulation (See 40 CFR §419.52), must be primarily determined by the Regional Administrator of Region II and finally approved by the Administrator of EPA. Since the EPA Administrator's approval had not been given,

the Regional Administrator of Region II submitted the preliminary Findings to the EPA Administrator on March 23, 1977.

On July 14, 1977 the Administrator of EPA concluded that the Regional Administrator's preliminary findings were unsupported by the record, and therefore, the additional allowances granted for the WSCP and Research Center could not be granted.

On June 20, 1978 Region II granted Exxon's request for an adjudicatory hearing "to consider solely whether Fundamentally Different Factors" exist at the Bayway Refinery. The hearing was held on February 13, 1979. At that time the Regional Administrator presented his findings which concluded that the WSCP did represent "Fundamentally Different Factors" than those considered in developing the Refining Industry Guidelines, and therefore, that an additional allowance for TOC and oil and grease should be included in Exxon's permit. The Tentative Determination to this effect was transmitted to the Administrator of EPA on December 1, 1979 for approval or modification.

On January 7, 1980 a letter was sent from Exxon to the EPA Administrator requesting that an additional allocation be granted for the WSCP for BOD, COD, ammonia, nitrogen, phenolic compounds and TSS.

ATTACHMENT NO. 1
EXXON BAYWAY REFINERY
EXISTING ENVIRONMENTAL PERMITS

<u>Type</u>	<u>Permit No.</u>		<u>Government Agency</u>		
NPDES	NJ 0001511		EPA		
	NJ 0026671		EPA		
	NJ 0026662		EPA		
Waste Water Treating	5-8-68-3258		NJDH		
	IND R-78-2-1		NJDEP		
	IND R-78-2-1A		NJDEP		
 <u>Air Permits by NJDEP</u>					
CT13758	CT13876	CT4817	CT32742	CT39517	CT9317
CT46588	CT3374	CT5555	CT32718	CT39516	CT9318
CT46589	CT3371	CT5556	CT32740	CT39515	CT43722
CT8982	CT3375	CT30275	CT32717	CT39514	CT36700
CT36017	CT3373	CT21809	CT32726	CT39513	CT36705
CT36018	CT3372	CT21807	CT32725	CT39512	CT36702
CT36019	CT4147	CT5557	CT32727	CT39511	CT36701
CT36020	CT22809	CT43723	CT32723	CT39510	CT40003
CT36012	CT46944	CT43724	CT32722	CT39509	CT36704
CT36013	CT46946	CT43725	CT32721	CT39508	CT36703
CT36014	CT46945	CT43726	CT32720	CT39507	CT36699
CT36015	CT46942	CT43727	CT30677	CT39504	CT36709
CT36016	CT46943	CT43728	CT21808	CT39506	CT36698
CT39181	CT4569	CT43731	CT47476	CT39505	CT36706
CT44150	CT4617	CT43729	CT47475	CT36718	CT36708
CT42024	CT4618	CT32738	CT47476	CT36717	CT36710
CT42803	CT30270	CT32737	CT4780	CT36715	CT36719
CT41616	CT30271	CT32733	CT37228	CT36714	CT36711
CT41617	CT30272	CT32735	CT35024	CT36707	CT36712
CT41779	CT30276	CT32734	CT31801	CT36713	CT13714
CT13509	CT30277	CT32732	CT31800	CT36716	CT13715
CT46724	CT30278	CT32731	CT39520	CT488	CT487
CT3109	CT5308	CT32730	CT39519	CT9315	CT13787
CT3110	CT4818	CT32724	CT39518	CT9316	CT37523
CT3414					

1982 HAZARDOUS WASTE FACILITY REPORT

EPA ID.: NJD-062037031
NAME: Exxon Company, U.S.A., Bayway Refinery
Address: 1400 Park Avenue, Linden, New Jersey 07036

Hazardous Waste Disposal Facility

Bayway Refinery owns and operates a Landfarm where hazardous waste is biodegraded (Attachment 1). Attachment 2 is a compilation of the Landfarm's daily waste tracking record. Descriptions and available analysis of these wastes are listed on Attachment 3.

Groundwater Monitoring

Quarterly groundwater monitoring of the Landfarm commenced in 1Q82. Evidence that groundwater monitoring data has been sent to the Division of Water Resources is in Attachment 4.

Hazardous Waste Storage Facilities

Storage of refinery hazardous waste consists of API Separator Bottoms in tanks 1, 129, 130, 132, and 133. Location of these tanks is shown on Attachment 1. All API Separator Bottoms which are Landfarmed are temporarily stored in this tankage prior to landfarm disposal; the quantity of waste is approximately 2,941,232 gallons for 1982. In addition, approximately 427,890 gallons of API Separator Bottoms were stored before they were transported to an offsite disposal facility.

Additional storage for hazardous waste, as shown in our Part A RCRA application, is available in Spent Caustic Tanks 105, 119, 307, 329, and 330. (Attachment 1) During 1982 100% of the spent caustic generated by the refinery was sold to other firms for their use in manufacturing operations.

Offsite Hazardous Waste Received

Bayway Refinery did not receive any hazardous wastes from offsite facilities in 1982.

Emergencies/Incidents

No incidents occurred at the hazardous waste facilities during 1982 that required implementation of the Contingency Plan.

Inspections

Inspection of the API Separator Bottoms and Spent Caustic storage facilities are conducted and logged as required by RCRA. The logs are kept at the unit control house and are available for inspection. Inspection logs, (Attachment 5) show the daily and weekly inspections of each storage tank's structure, safety equipment, level, and temperature.

Closure and Post Closure Cost Estimates

Closure Cost Estimate:	\$699,000
Post Closure Cost Estimate:	\$371,000

UNITS	LOCATION
A.O.W.	J-7
A.O.W. FLARE	J-9
GAUGE DOCK OFFICE	L-14
GAUGE PIER "A" & "B"	L-14
BLENTERS	L-4
S.O.S.	M-5
BUTANE & PROPANE	K-3
CAUSTIC EVAPORATION	L-7
CAVERNS AREA	K-9
C.O.U.	O-8
C.F.M.O.S.	L-5
C.I.E.U.	M-9
C.I.E.U. FLARE	L-3
COALSCERS	J-4
CONTROL CENTER	K-4
COOLING TOWERS	O-8
EAST SEPARATOR	N-9
ETHYLENE SPHERES	N-9
F.C.O.W.	M-1
F.C.O.W.	M-9
F.C.O.W.	M-1
FIRE HEADQUARTERS	M-1
GROUP I PROPANE DRUMS	K-9
GROUP II PROPANE DRUMS	L-9
H.O.W.	J-5
HIGH PURITY PROPYLENE UNIT	M-9
M.P.U.	L-4
HYDRO PLANT	L-10
I.O.W.	N-9
KEPONE	P-9
LOADING RACK	N-7
ONIS CONTR. CENTER	G-9
PARANON	L-4
PARANON FLARE	K-4
P.F.O.W. No. 1	K-4
P.F.O.W. No. 2	K-5
PIPE STILL No. 2	L-7
PIPE STILL No. 3	L-7
PIPE STILL No. 5	L-6
PIPE STILL No. 6	L-6
PIPE STILL No. 7	L-7
POLY No. 1	K-4
POLY No. 2	K-7
POLY FLARE	K-6
PROPYLENE LOADING RACK	N-10
SEC. WASTE TREATING UNIT	M-4
S.M.O.W.	O-8
STEAMER DOCK No. 1	O-13
STEAMER DOCK No. 2	P-13
STOREHOUSE & SHOPS	O-7
STATOR RECOVERY UNIT	K-7
TANK CAR CLEANING	L-4
T.S.I. BUILDING	M-7
TRUCK SCALE	O-7
TURBO OIL	O-7
UTILITIES	L-8
VISSIAN "A"	K-9
WEST SEPARATOR	J-6
WHOLE OIL	O-8
TANK NOT IN TANK FIELDS	LOCATION
1 - 2 & 3 SPHERES	M-5
3000 SPHERES	J-8
100 - 101 TANKS	J-8
110 TANK	J-7
105 - 106 - 110 TANKS	J-8
103 SPHERE	M-8
104 - 105 - 106 SPHERES	M-8
107 - 110 - 110 SPHERES	M-7
200 SPHERES	M-7
301 TANK	M-11
302 - 303 TANKS	M-12
304 - 307 TANKS	M-11
308 TANK	M-13
310 TANK	M-13
317 - 318 - 319 TANKS	L-12
320 TANK	M-14
321	M-12
322	M-12
323	M-12
324	M-12
325	M-13
326	M-13
327	M-13
328	M-13
329	M-13
330	M-13
331	M-13
332	M-13
333	M-13
334	M-13
335	M-13
336	M-13
337	M-13
338	M-13
339	M-13
340	M-13
341	M-13
342	M-13
343	M-13
344	M-13
345	M-13
346	M-13
347	M-13
348	M-13
349	M-13
350	M-13
351	M-13
352	M-13
353	M-13
354	M-13
355	M-13
356	M-13
357	M-13
358	M-13
359	M-13
360	M-13
361	M-13
362	M-13
363	M-13
364	M-13
365	M-13
366	M-13
367	M-13
368	M-13
369	M-13
370	M-13
371	M-13
372	M-13
373	M-13
374	M-13
375	M-13
376	M-13
377	M-13
378	M-13
379	M-13
380	M-13
381	M-13
382	M-13
383	M-13
384	M-13
385	M-13
386	M-13
387	M-13
388	M-13
389	M-13
390	M-13
391	M-13
392	M-13
393	M-13
394	M-13
395	M-13
396	M-13
397	M-13
398	M-13
399	M-13
400	M-13
401	M-13
402	M-13
403	M-13
404	M-13
405	M-13
406	M-13
407	M-13
408	M-13
409	M-13
410	M-13
411	M-13
412	M-13
413	M-13
414	M-13
415	M-13
416	M-13
417	M-13
418	M-13
419	M-13
420	M-13
421	M-13
422	M-13
423	M-13
424	M-13
425	M-13
426	M-13
427	M-13
428	M-13
429	M-13
430	M-13
431	M-13
432	M-13
433	M-13
434	M-13
435	M-13
436	M-13
437	M-13
438	M-13
439	M-13
440	M-13
441	M-13
442	M-13
443	M-13
444	M-13
445	M-13
446	M-13
447	M-13
448	M-13
449	M-13
450	M-13
451	M-13
452	M-13
453	M-13
454	M-13
455	M-13
456	M-13
457	M-13
458	M-13
459	M-13
460	M-13
461	M-13
462	M-13
463	M-13
464	M-13
465	M-13
466	M-13
467	M-13
468	M-13
469	M-13
470	M-13
471	M-13
472	M-13
473	M-13
474	M-13
475	M-13
476	M-13
477	M-13
478	M-13
479	M-13
480	M-13
481	M-13
482	M-13
483	M-13
484	M-13
485	M-13
486	M-13
487	M-13
488	M-13
489	M-13
490	M-13
491	M-13
492	M-13
493	M-13
494	M-13
495	M-13
496	M-13
497	M-13
498	M-13
499	M-13
500	M-13
501	M-13
502	M-13
503	M-13
504	M-13
505	M-13
506	M-13
507	M-13
508	M-13
509	M-13
510	M-13
511	M-13
512	M-13
513	M-13
514	M-13
515	M-13
516	M-13
517	M-13
518	M-13
519	M-13
520	M-13
521	M-13
522	M-13
523	M-13
524	M-13
525	M-13
526	M-13
527	M-13
528	M-13
529	M-13
530	M-13
531	M-13
532	M-13
533	M-13
534	M-13
535	M-13
536	M-13
537	M-13
538	M-13
539	M-13
540	M-13
541	M-13
542	M-13
543	M-13
544	M-13
545	M-13
546	M-13
547	M-13
548	M-13
549	M-13
550	M-13
551	M-13
552	M-13
553	M-13
554	M-13
555	M-13
556	M-13
557	M-13
558	M-13
559	M-13
560	M-13
561	M-13
562	M-13
563	M-13
564	M-13
565	M-13
566	M-13
567	M-13
568	M-13
569	M-13
570	M-13
571	M-13
572	M-13
573	M-13
574	M-13
575	M-13
576	M-13
577	M-13
578	M-13
579	M-13
580	M-13
581	M-13
582	M-13
583	M-13
584	M-13
585	M-13
586	M-13
587	M-13
588	M-13
589	M-13
590	M-13
591	M-13
592	M-13
593	M-13
594	M-13
595	M-13
596	M-13
597	M-13
598	M-13
599	M-13
600	M-13
601	M-13
602	M-13
603	M-13
604	M-13
605	M-13
606	M-13
607	M-13
608	M-13
609	M-13
610	M-13
611	M-13
612	M-13
613	M-13
614	M-13
615	M-13
616	M-13
617	M-13
618	M-13
619	M-13
620	M-13
621	M-13
622	M-13
623	M-13
624	M-13
625	M-13
626	M-13
627	M-13
628	M-13
629	M-13
630	M-13
631	M-13
632	M-13
633	M-13
634	M-13
635	M-13
636	M-13
637	M-13
638	M-13
639	M-13
640	M-13
641	M-13
642	M-13
643	M-13
644	M-13
645	M-13
646	M-13
647	M-13
648	M-13
649	M-13
650	M-13
651	M-13
652	M-13
653	M-13
654	M-13
655	M-13
656	M-13
657	M-13
658	M-13
659	M-13
660	M-13
661	M-13
662	M-13
663	M-13
664	M-13
665	M-13
666	M-13
667	M-13
668	M-13
669	M-13
670	M-13
671	M-13
672	M-13
673	M-13
674	M-13
675	M-13
676	M-13
677	M-13
678	M-13
679	M-13
680	M-13
681	M-13
682	M-13
683	M-13
684	M-13
685	M-13
686	M-13
687	M-13
688	M-13
689	M-13
690	M-13
691	M-13
692	M-13
693	M-13
694	M-13
695	M-13
696	M-13
697	M-13
698	M-13
699	M-13
700	M-13
701	M-13
702	M-13
703	M-13
704	M-13
705	M-13
706	M-13
707	M-13
708	M-13
709	M-13
710	M-13
711	M-13
712	M-13
713	M-13
714	M-13
715	M-13
716	M-13
717	M-13
718	M-13
719	M-13
720	M-13
721	M-13
722	M-13
723	M-13
724	M-13
725	M-13
726	M-13
727	M-13
728	M-13
729	M-13
730	M-13
731	M-13
732	M-13
733	M-13
734	M-13
735	M-13
736	M-13
737	M-13
738	M-13
739	M-13
740	M-13
741	M-13
742	M-13
743	M-13
744	M-13
745	M-13
746	M-13
747	M-13
748	M-13
749	M-13
750	M-13
751	M-13
752	M-13
753	M-13
754	M-13
755	M-13
756	M-13
757	M-13
758	M-13
759	M-13
760	M-13
761	M-13
762	M-13
763	M-13
764	M-13
765	M-13
766	M-13
767	M-13
768	M-13
769	M-13
770	M-13
771	M-13
772	M-13
773	M-13
774	M-13
775	M-13
776	M-13
777	M-13
778	M-13
779	M-13
780	M-13
781	M-13
782	M-13
783	M-13
784	M-13
785	M-13
786	M-13
787	M-13
788	M-13
789	M-13
790	M-13
791	M-13
792	M-13
793	M-13
794	M-13
795	M-13
796	M-13
797	M-13
798	M-13
799	M-13
800	M-13
801	M-13
802	M-13
803	M-13
804	M-13
805	M-13
806	M-13
807	M-13
808	M-13
809	M-13
810	M-13
811	M-13
812	M-13
813	M-13
814	M-13
815	M-13
816	M-13
817	M-13
818	M-13
819	M-13
820	M-13
821	M-13
822	M-13
823	

ATTACHMENT 3

DESCRIPTION OF WASTE DISPOSAL AT THE LANDFARM

API Separator Bottoms

API Separator Bottoms are periodically removed from the Refinery Separators which receive streams from the process sewers. The attached RCRA analysis for this waste indicates it is nonhazardous. However, because API Separator Bottoms are listed as a hazardous waste, they are handled and disposed as hazardous waste. We are currently preparing a delisting petition.

Biox Sludge

As part of the process wastewater treatment system, the two biological lagoons generate an activated sludge before final filtration. This Biox Sludge consists of approximately 92 percent water and 8 percent solids. The solids portion is typically 60 percent bio-mass (C,H,O,N), 35 percent ash (inert organics) and 5 percent oil. A priority pollutant and RCRA analysis of this waste are attached which indicate it is a non-hazardous waste.

Oily Dirt

Oil spill cleanup material with crude or oil heavier than heating oil was mixed with dirt and landfarmed. This is a nonhazardous waste.

Gasoline Component Tank Bottoms

Tanks 234, 244, 248, and 250 contain unleaded naphthas for blending gasoline. Tank bottoms are primarily dirt and scale.

Caustic Tank Bottoms

Bottoms from caustic tank 307 were disposed at the Landfarm to control soil pH.

350 Tank Bottoms

350 tank is in leaded regular gasoline service. The tank bottoms mostly consist of oily dirt and scale.

Lime Sludge

This waste consists of calcium oxide generated from neutralization of hydrocarbon gas streams. This lime is added to the Landfarm to maintain soil pH between 7 and 9.

Rust and Scale

This waste is primarily iron oxide and is nonhazardous.

Stretford Sludge

Stretford solution is a liquid waste stream generated at Bayway's Sulfur Recovery Units and treated at the process wastewater plant. During a transfer of this stream to the treatment facility, it spilled into two tank firebanks to form Stretford Sludge. The attached RCRA analysis indicates this sludge is hazardous solely because its pH is less than 2. This waste was applied to the Landfarm soil for pH control.

EXXON COMPANY, U.S.A.

POST OFFICE BOX 222 • LINDEN, NEW JERSEY 07036-0222

REFINING DEPARTMENT
BAYWAY REFINERY

May 11, 1987

N.J. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR POLLUTION CONTROL

Mr. Byron Sullivan, Supervisor
Metro Field Office - Room 510
Department of Environmental Protection
2 Babcock Place
West Orange, New Jersey 07052

RE: Bayway Release Report
April 18, 1987

Dear Mr. Sullivan:

This report provides a chronology of events that occurred around the time of the April 18th upset of the sour water stripping unit at the Bayway Refinery. The upset was brief (2-3 minutes duration) and we notified immediately.

At approximately 6:40 P.M. on April 18th, an upset occurred at Bayway Refinery's sour water stripping unit (PWTU-2) due to a malfunction of the online DDC computer. As a result of this unit upset, a release of H₂S to the atmosphere occurred at the Tail Gas Clean-up Unit (TGCU) and lasted for two to three minutes. The release was immediately called in to the Linden Fire Department, the DEP Trenton Hotline, and the Middlesex County Health Department (MCHD) by the Shift Superintendent, W. Kearney. Ms. T. Pallington of MCHD responded, visited the site at 8:00 P.M., spoke to operations personnel and verified that operations had returned to normal.

The offgas from PWTU-2, which consists of H₂S, NH₃, and water vapor, is known as dirty acid gas (DAG) and is one of the two principal feedstreams to our sulfur recovery section as highlighted in the Attachment 1 flow schematic. It is surmised that some hydrocarbon was entrained into the offgas as part of the upset. This "slug" of hydrocarbon preferentially consumed combustion air at the two Claus sulfur recovery units in operation at the time, SRUs B and C. Consequently, H₂S levels in the SRU effluent stream, increased from 1.5% to approximately 10% by volume for two to three minutes. Since this effluent stream is the feed to the TGCU, the higher concentration of H₂S slightly exceeded the TGCU's absorption capacity for this brief period. The upset condition was observed and monitored by operations personnel. The resultant H₂S release caused an H₂S alarm on a TGCU tower to sound. Immediate field checks of the area were made by the operator, and it was determined that the release was of short duration and no evacuation or further remedial action was needed. The wind direction and speed at that time was to the southwest at 8-9 mph. Included as Attachment 2 is a copy of our computer console control supervisor's log of the event which notes the time of the upset.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE 02 SITE NUMBER

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Exxon Bayway Refinery		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 1400 Park Ave.			
03 CITY Linden	04 STATE NJ	05 ZIP CODE 07036	06 COUNTY Union	07 COUNTY CODE	08 CONG DIST
09 COORDINATES LATITUDE 40 38 00 LONGITUDE 74 13 10		10 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER <input type="checkbox"/> G. UNKNOWN			

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 5 29 86 MONTH DAY YEAR	02 SITE STATUS <input checked="" type="checkbox"/> ACTIVE <input type="checkbox"/> INACTIVE	03 YEARS OF OPERATION 1909 BEGINNING YEAR ENDING YEAR Presently operating	UNKNOWN
04 AGENCY PERFORMING INSPECTION (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. MUNICIPAL <input type="checkbox"/> D. MUNICIPAL CONTRACTOR <input checked="" type="checkbox"/> E. STATE <input type="checkbox"/> F. STATE CONTRACTOR <input type="checkbox"/> G. OTHER			

05 CHIEF INSPECTOR Karl Vetter	06 TITLE Geologist	07 ORGANIZATION NJDEP	08 TELEPHONE NO. (609) 292-0424
09 OTHER INSPECTORS Ken Siet	10 TITLE Geologist	11 ORGANIZATION NJDEP	12 TELEPHONE NO. (609) 292-0424
			()
			()
			()
			()

13 SITE REPRESENTATIVES INTERVIEWED Bill Toatch	14 TITLE Environmental Coordinator	15 ADDRESS Exxon	16 TELEPHONE NO. (201) 474-7585
Sherman Brown	Environmental Planner		(201) 474-6330
			()
			()
			()
			()

BLOCK LOT	17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT	18 TIME OF INSPECTION 10 am	19 WEATHER CONDITIONS Sunny, warm
-----------	--	--------------------------------	--------------------------------------

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization) NJDEP/Hazardous Site Mitigation Admin	03 TELEPHONE NO. 6091
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM Karl Vetter	05 AGENCY DWR	06 ORGANIZATION NJDEP
	07 TELEPHONE NO. (609) 292-0424	08 DATE 5 29 86 MONTH DAY YEAR



01 PHYSICAL STATES (Check all that apply):

- 02 WASTE QUANTITY AT SITE**
(Measure of waste quantities
(not in containers))

03 WASTE CHARACTERISTICS (Check all that apply)

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> A. TOXIC | <input type="checkbox"/> E. SOLUBLE | <input checked="" type="checkbox"/> I. HIGHLY VOLATILE |
| <input checked="" type="checkbox"/> B. CORROSIVE | <input type="checkbox"/> F. INFECTIOUS | <input type="checkbox"/> J. EXPLOSIVE |
| <input type="checkbox"/> C. RADIOACTIVE | <input checked="" type="checkbox"/> G. FLAMMABLE | <input checked="" type="checkbox"/> K. REACTIVE |
| <input type="checkbox"/> D. PERSISTENT | <input type="checkbox"/> H. IGNITABLE | <input type="checkbox"/> L. INCOMPATIBLE |
| | | <input type="checkbox"/> M. NOT APPLICABLE |

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS numbers)

V. FEEDSTOCKS (See Appendix for CAS Numbers)

VI. SOURCES OF INFORMATION (Case specific references, e.g., State files, autopsy analysis, reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☒ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Ground water contamination has been documented pursuant to compliance monitoring under State NJPDES permit.

01 ☒ B. SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

See P.A. for details.

01 ☐ C. CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ F. CONTAMINATION OF SOIL 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Air photos and site inspection have shown discolored soil. see P.A. for details of areas potentially affected.

01 ☐ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
NJ 15

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input checked="" type="checkbox"/> A. NPDES	NJH001511	See G		Exempted from NPDES
<input type="checkbox"/> B. UIC				
<input checked="" type="checkbox"/> C. AIR	See			
<input type="checkbox"/> D. RCRA	attached			
<input checked="" type="checkbox"/> E. RCRA INTERIM STATUS	on file			Landfarm
<input type="checkbox"/> F. SPCC PLAN	for			
<input checked="" type="checkbox"/> G. STATE (Specify)	listing of			Surface Water and Groundwater
<input type="checkbox"/> H. LOCAL (Specify)	permits			
<input type="checkbox"/> I. OTHER (Specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
<input checked="" type="checkbox"/> A. SURFACE IMPOUNDMENT	See P2		<input type="checkbox"/> A. INCINERATION	<input type="checkbox"/> A. BUILDINGS ON SITE
<input type="checkbox"/> B. PILES			<input type="checkbox"/> B. UNDERGROUND INJECTION	
<input type="checkbox"/> C. DRUMS, ABOVE GROUND			<input checked="" type="checkbox"/> C. CHEMICAL/PHYSICAL	
<input checked="" type="checkbox"/> D. TANK, ABOVE GROUND			<input checked="" type="checkbox"/> D. BIOLOGICAL	
<input type="checkbox"/> E. TANK, BELOW GROUND			<input type="checkbox"/> E. WASTE OIL PROCESSING	
<input checked="" type="checkbox"/> F. LANDFILL			<input type="checkbox"/> F. SOLVENT RECOVERY	06 AREA OF SITE
<input checked="" type="checkbox"/> G. LANDFARM			<input type="checkbox"/> G. OTHER RECYCLING/RECOVERY	2000 + Acres
<input checked="" type="checkbox"/> H. OPEN DUMP			<input type="checkbox"/> H. OTHER (Specify)	
<input type="checkbox"/> I. OTHER (Specify)				

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)
☒ A. ADEQUATE, SECURE ☒ B. MODERATE ☒ C. INADEQUATE, POOR ☒ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DROPPING, LINERS, BARRIERS, ETC.

See P2 for description of 22 units

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☒ NO

02 COMMENTS

Entire complex is fenced and guarded. Once facility is entered, some waste are accessible and others aren't.

VI. SOURCES OF INFORMATION (Give specific references, e.g. state files, company analyses, reports)

PA

ATTACHMENT 1

Appendix VIII Hazardous Constituents Suspected to be Present in Refinery Wastes

- **Acetonitrile (Ethanenitrile)
- **Acrolein (2-Propenal)
- **Acrylonitrile (2-Propenenitrile)
- Aniline (Benzenamine)
- Antimony
- Arsenic
- Barium
- Benz (c) acridine (3,4-Benzacridine)
- Benz (a) anthracene (1,2-Benzanthracene)
- **Benzene (Cyclohexatriene)
- Benzenethiol (Thiophenol)
- Benzidine (1,1-Biphenyl-4,4'-diamine)
- Benzo(b)fluoranthene (2,3-Benzofluoranthene)
- Benzo(j)fluoranthene (7,8-Benzofluoranthene)
- Benzo(a)pyrene (3,4-Benzopyrene)
- **Benzyl chloride (Benzene, (chloromethyl)-)
- Beryllium
- Bis (2-chloroethyl) ether (Ethane, 1,1'-oxybis (2-chloro-))
- Bis (2-chloroisopropyl) ether (Propane, 2,2'-oxybis (2-chloro-))
- **Bis (chloromethyl) ether (Methane, oxybis (chloro))
- Bis (2-ethylhexyl) phthalate (1,2-Benzenedicarboxylic acid, bis (2-ethylhexyl) ester)
- Butyl benzyl phthalate (1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester)
- Cadmium
- Carbon disulfide (Carbon bisulfide)
- p-Chloro-m-cresol
- **Chlorobenzene (Benzene, chloro-)
- **Chloroform (Methane, trichloro-)
- **Chloromethane (Methyl chloride)
- 2-Chloronaphthalene (Naphthalene, beta-chloro-)
- 2-Chlorophenol (Phenol, o-chloro-)
- Chromium
- Chrysene (1,2-Benzphenanthrene)
- Cresols (Cresylic acid) (Phenol, methyl-)
- **Crotonaldehyde (2-Butenal)
- Cyanide
- Dibenz(a,h)acridine (1,2,5,6-Dibenzacridine)
- Dibenz(a,j)acridine (1,2,7,8-Dibenzacridine)
- Dibenz(a,h)anthracene (1,2,5,6-Dibenzanthracene)
- 7H-Dibenzo(c,g)carbazole (3,4,5,6-Dibenzcarbazole)
- Dibenzo(a,e)pyrene (1,2,4,5-Dibenzpyrene)
- Dibenzo(a,h)pyrene (1,2,5,6-Dibenzpyrene)
- Dibenzo(a,i)pyrene (1,2,7,8-Dibenzpyrene)
- **1,2-Dibromoethane (Ethylene dibromide)
- Di-n-butyl phthalate (1,2-Benzenedicarboxylic acid, dibutyl ester)
- *Dichlorobenzenes
- **1,2-Dichloroethane (Ethylene dichloride)
- **trans-1,2-Dichloroethene (1,2-Dichlorethylene)
- **1,1-Dichloroethylene (Ethene, 1,1-dichloro-)
- **Dichloromethane (Methylene chloride)

C

BAYWAY REFINERY

FACILITY DESCRIPTION

Site Description and Utilization

The Exxon Refinery is located in the City of Linden in northeastern New Jersey (Vicinity Map, Plate 1). The refinery occupies several parcels of land, one of which has frontage along the Arthur Kill, where docking facilities exist. The southernmost parcel of land is adjacent to a sanitary landfill operated by the City of Linden, and it is our understanding that the landfill has been extended onto the Exxon property. Permitting considerations for the sanitary landfill have not been addressed in this study.

The area is generally flat and low-lying with elevations ranging between 10 and 20 feet above sea level. Several surface water drainages flow into Arthur Kill. These include the Rahway River, Piles Creek, and Morses Creek. Morses Creek has been dammed at its confluence with Orchard Brook, which in turn has been dammed to provide reservoirs for refinery water supply (Plate 2). — *mining*

Onsite waste disposal and treatment activities at the refinery include a wastewater treatment plant. [Surface runoff from outlying parts of the plant is directed to earthen separators where it receives primary treatment prior to discharge to the various surface water bodies.] Oily sludges are disposed of by land farming. A neutralization and equalization system consisting of two small surface impoundments pretreats potentially reactive materials near the chemical processing area. Scrapings from leaded gasoline tanks are spread within the tank field dikes for natural oxidation and are not treated at a central location.

A list of the active hazardous waste management facilities is presented in Table 1. The number of abandoned or inactive hazardous

Attachment D

waste disposal facilities appears to be limited. There is a series of sludge ponds located immediately to the south of the upper Tremley tank field and adjacent to the lower Tremley tank field separator. Extensive deposits of soft pitch which may be part of an abandoned disposal site were encountered in borings drilled in the vicinity of the butane and propane caverns. A site plan showing the location of both active and inactive facilities is presented in Plate 3.

Topographic Map

The topographic map required for Part A of the Permit Application under Section 3005 of RCRA is enclosed in a pocket at the end of this report. The map was produced by enlarging United States Geological Survey (USGS) 1:24,000 quadrangle sheets of the area and plotting the required data (using refinery maps and water resource publications) on them.

GEOLOGY

Regional Setting

The Bayway Refinery is located near the boundary between the Piedmont Plateau and the Atlantic Coastal Plain physiographic provinces. The area is situated on the eastern edge of the northeast-southwest trending, down-faulted Newark Basin, which contains 15,000 to 20,000 feet of Triassic age continental shales, sandstones, conglomerates, and basic igneous rocks forming the Newark Group (Plate 4). This group of sediments unconformably overlies schist and gneiss of the Wissahickon Formation of Early Paleozoic (?) age.

The Newark Group has been divided into three formations (from oldest to youngest): the Stockton Formation, the Lockatong Formation, and the Brunswick Shale. The attitudes of the beds vary but generally strike N 50°E dipping 9° to 12°NW. The beds have been modified by

extensive block-faulting and fracturing, igneous intrusion, and contact metamorphism.

Three periods of igneous flow and at least one igneous intrusion occurred during the deposition of the Triassic age sediments. Two of the three basalt flows, each 500 to 800 feet thick, occurred in the upper Brunswick shale and compose the first and second Watchung and Hook Mountains. The third is an approximately 1,000-foot thick diabase sill which forms the Palisades along the Hudson River.

No Jurassic age sediments occur in the area. During the Cretaceous period more than a hundred feet of continental sands and clays were deposited unconformably on an eroded edge of the Brunswick Shale. This basal unit of the Coastal Plain sequence, named the Raritan Formation, outcrops in a belt extending from Salem to Perth Amboy, New Jersey. The formation strikes N 45°E and dips <1°SE.

The Brunswick Shale and Raritan Formation are overlaid extensively by Pleistocene age till and stratified drift up to 100 feet thick. Locally, the Brunswick Shale may be overlaid by approximately 25 feet of high terrace gravels and sands of the Pensauken Formation, also of Pleistocene age.

Recent (Holocene) deposits include river alluvium, swamp, salt marsh and aeolian deposition of minor extent in the north, which form the coastal plains to the south and east.

In the vicinity of the refinery, Brunswick Shale is encountered near the surface and is overlaid by till and marsh deposits along the coast.

Site Conditions

Subsurface conditions in the refinery area can be described by data from borings taken over many years. The natural soil conditions consist

of a variable thickness of root mat and soft silts and clays (the greatest thickness being near the Arthur Kill) overlying a stratum of glacial till which is a heterogeneous mixture of gravel, sand, silt, and clay, with fine-grained soils generally predominating. Underlying the till, shale bedrock of the Brunswick Formation is encountered. Bedrock is generally present in the site area at elevations between 0 and -20 feet, although close to the Arthur Kill the bedrock surface drops quickly and may be encountered at elevations below -60 feet.

The natural soil conditions have been modified to permit construction of the refinery facilities. Modifications include removal of the root mat and soft clays, placement of fill (glacial till, cinders, and crushed rock), or combinations of both.

The hazardous waste management facilities at the refinery are spread throughout the site, but the general soil conditions at each facility are similar and conform to the typical profile described above. The conditions in the vicinity of each facility are shown in Plates 5 through 9.

The nature of the subsurface soils in the vicinity of the land farm is assumed based on the results of borings drilled immediately north and south of the area, near the upper Tremley tank field separator and the propane cavern area separator. The subsurface soils are predominately fine-grained silts and clays with the shale bedrock at approximately elevation -14. It is our understanding that a ground water monitoring system has been installed in the land farm area, but no test results or water quality data were available at the time of the site visit.

The separator in the 40-acre tank field is an earthen structure. Soil conditions in the vicinity are typical of the site with approximately 20 feet of fine-grained soils overlying the bedrock (Plate 5). The separator at the upper Tremley tank field is also of earthen construction and soil conditions are again typical of the site with some

20 feet of clay and clay-gravel mixtures extending to a depth of approximately 20 feet (Plate 6).

The natural soil conditions at the equalization and neutralization basins have been modified by the addition of 5 to 10 feet of fill. Sandy clay has been placed directly over the root mat and soft clay layer. An impervious compacted soil liner was recommended by the geotechnical consultant who performed the investigation of the ponds. The liner was to be 5 feet in thickness around the edges of the ponds, and approximately 2 feet in thickness at the bottom of the pond. Around the edges, the liner was to be keyed into the glacial till. Soil conditions are shown in Plate 7.

The western separator is a concrete structure. The underlying glacial till in this area appears to contain fairly coarse-grained soils, with zones of silty, coarse-to-fine sand and silty, fine sand within the upper 10 feet (Plate 8).

Generalized soil conditions in the vicinity of the East Retention Basin are shown in Plate 9. In this area, the root mat and soft clays appear to have been removed and replaced with fill material consisting of cinders and sandy clay. Various gradations of silty clay and clay silt are encountered to a depth of approximately 25 feet where the shale bedrock horizon is present. The separator is of concrete construction.

The wastewater treatment plant is located adjacent to the reservoir above Dam No.2, and is constructed over some 10 feet of fill. The fill consists of cinders, crushed rock, and sand which appears to have been placed directly over the soft clay layer. The oxidation ponds are excavated into the fill, and are surrounded by earthen dikes with concrete cores which extend vertically at least four feet into the till, or till and shale. These we designed to eliminate lateral movement of water, while the underlying till and shale impedes vertical movement. Soil conditions are illustrated in Plate 10.

The Rahway River tank field separator is an earthen structure which is underlain by approximately 20 feet of fill. This consists of heterogeneous zones of silty and sandy clay with occasional gravels, and is underlain by shale.

Soil Properties

Limited data exist regarding the physical properties of the subsurface soils. Previous geotechnical investigations were performed primarily for foundation design purposes and these recommendations have generally been based on strength testing and basic moisture/density and index property measurements (see Table 2). No permeability test results were encountered in the literature review and only limited consolidation testing appears to have been conducted.

The soft clay underlying the surface root mat, because of its high plasticity, is relatively impermeable. The clay and silt fraction of the till materials is of low-to-moderate plasticity and reportedly consolidates quickly under load. The permeability of these soils may well exceed 1.0×10^{-7} cm/sec, particularly when considering the overall stratum of till with its variable content of sand and gravel.

Ground Water Conditions

Ground water table elevations throughout the refinery were summarized by Exxon personnel on a plan dated October 2, 1978. It is likely that the elevations recorded on this plan were actually measured over a period of many years during geotechnical investigations for new portions of the plant. For this reason, it would normally be difficult to correlate the data unless the dates of measurement were known. However, it is clear from the plan, that throughout the year, the ground water table is generally encountered within 3 feet of the ground surface and only in isolated cases does the depth exceed 5 feet. In the few cases where the ground water is deeper than 5 feet, it is not clear whether this is a seasonal phenomena. The depth to the ground water is not shown as being in excess of 5 feet at any of the hazardous waste management facility sites.

HYDROLOGY

Regional Setting

Five aquifers exist and are tapped for ground water in the northeast New Jersey metropolitan area. These aquifers are: (1) stratified drift deposits of Pleistocene age, (2) Sayreville and (3) Farrington sand members of the Raritan Formation, (4) Watchung Basalt, and (5) Brunswick Formation. Regional stratigraphy, along with geologic and hydrologic characteristics, is presented in Plate 4.

Stratified drift is a valley-fill deposit composed mostly of sand and gravel. It is generally less than 30 feet thick and is not areally extensive. Wells tapping this aquifer have an average yield of 394 gpm and specific capacity of 19 gpm per foot of drawdown.

The Sayreville and Farrington sand members are the two aquifers of the Raritan Formation. They are separated by the Woodbridge Clay which prevents any hydrologic connection between the two aquifers. The average coefficient of permeability of the Sayreville and Farrington sand members is 300 and 1,650 gpd/sq ft., respectively.

Watchung Basalt is a minor aquifer with a capacity to produce small to moderate quantities of water. The average specific capacity of the wells in the basalt is 1.23 gpm/ft. of drawdown.

The Brunswick Formation is the most important aquifer of the area. Ground water occurs under both water table and artesian conditions. In the upland area where the overlying unconsolidated sediments mantling the aquifer are thin or absent, water table conditions prevail. Artesian conditions occur in the lowland areas where the overlying sediments are thick or in areas where Raritan fireclay overlies and confines it. In a few areas, the potentiometric surface is above the ground level and

flowing wells occur. The permeability of the Brunswick Formation is secondary and is caused by fracturing. These fractures are developed preferentially along the regional strike of the strata (N 50°E). This orientation of the fractures causes a strong anisotropy in the aquifer as evidenced by pump test results showing drawdowns greater along the direction of the strike than in the direction perpendicular to it. The permeability also decreases with depth. The average yield of wells tapping the Brunswick Formation in Union County is 200 gpm while that of larger diameter wells is 310 gpm. The specific capacity ranges from 0.04 to 25 gpm/ft. of drawdown.

Water from aquifers above the Brunswick is generally of good quality. In the Brunswick Formation, the total dissolved solids content of the water varies with locality and depth. Along Arthur Kill and tidal reaches of the Rahway River, saltwater encroachment is a problem in all aquifers and has caused abandonment of many wells.

Ground water represents a small percentage of the dependable combined surface and ground water supply that approaches 1,036 Mgd used in the northeast New Jersey metropolitan area. Ground water is developed to its maximum potential in most portions of the region. Industrial usage ranks second behind public usage in total demand (ground plus surface), but ranks first in ground water usage in the area. Many of the "large" industrial users, near salinity susceptible areas, now purchase water from public suppliers, which use combinations of ground water and surface water supplies.

Local Hydrology

Ground water was a prime source of water for domestic and industrial use for many years in the Linden area. Most of the water came from the Brunswick Shale, and to a lesser extent from the sands of the Raritan Formation. Wells penetrating the latter aquifer were generally shallow and located along the edge of the Arthur Kill.

It is reported that, at one time, at least thirteen water wells were owned and operated by Exxon (Standard Oil). All thirteen wells were completed in the Brunswick Shale at depths between 200 and 400 feet. Pumping test results showed that in all cases, pumping depressed the piezometric surface well below sea level (occasionally in excess of 250 feet). This factor, together with nearby pumping by others, was probably responsible for the saltwater intrusion which produced brackish water in the wells, resulting in their eventual abandonment.

It is our understanding that because of saltwater encroachment, little, if any, ground water is now withdrawn in Union County for municipal supply, or industrial use. The few privately owned wells known to have existed in the area may still be operational, and their locations have been plotted on the topographic map (Plate 2) and listed on Table 3.

The RCRA regulations make reference to the term Underground Drinking Water Source (UDWS). In its present condition, it is unlikely that the ground water in the Brunswick Shale in the vicinity of the refinery could be considered as a drinking water source.

Water quality in the Brunswick (pre-saltwater encroachment) was generally good, although there was, and is a tendency towards hardness caused by high calcium and magnesium content. A high concentration of sulfates in some deeper wells has been attributed to the presence of gypsum which has been deposited in cracks. Typical water quality data for ground water from the Brunswick Shale is presented in Table 3. During the 20-year period covered by these records, there appears to have been no appreciable change in water quality in the area. No water quality data for the wells at the refinery were discovered during the investigation.

CLIMATOLOGY

Bayway, New Jersey is located approximately 3.5 miles southwest of Newark Bay, in the northeast quadrant of the state. The climate of the surrounding region is humid continental. Moist, warm summers controlled by tropical air masses alternate with moderately cold winters influenced greatly by continental polar air masses. Humidity is generally high and rainfall is abundant throughout the year. The usual frost-free period is 187 days extending from April 19 to October 23. During this period the prevailing winds are, generally, from the southwest. From October to April the prevailing winds, generally, are from the northwest.

Meteorological parameters from reporting stations close to the site have been reviewed and tabulated, and are presented in Plate 11. Average rainfall and temperature levels were extracted from means tabulated for the years 1941 to 1970 and from observations made at the Elizabeth reporting station (located approximately 3 miles northwest of the site). Wind movement and evaporation data were reported, when available, from data collected for the year 1977. The wind means represent the total number of miles of wind (recorded by a transcribing anemometer) divided by a total number of hours (month or year) yielding a directionless miles-per-hour average. Evaporation data were necessarily obtained concurrently with the wind data, both being reported as standard weather procedure results from the Canoebrook meteorological station located approximately 10 miles to the northwest of the site.

Because of the extreme subjectivity in the development of evapotranspiration models of an area, standard Weather Service pan evaporation data are supplied in this report. It is believed that these evaporation data will roughly approximate the region and, by being a standardized observation, can later be used in a more precise evapotranspiration model, if necessary.

REFERENCES

Anderson, H. R., Geology and Ground Water Resources of the Rahway Area, New Jersey, Special Report No. 27, USGS, 1968.

Herpers, H. and Barksdale, H. C., Preliminary Report on the Geology and Ground Water Supply of the Newark, New Jersey Area, USGS, 1951.

Nemickas, B., Geology and Ground Water Resources of Union County, New Jersey, USGS, Water Resources Investigations 76-73, 1976.

Preliminary Report on Available Water Supply Sources Water Demand Projections and Proposed New Water Resources Development for North-eastern New Jersey Region I, Division of Water Policy and Supply, Circular No. 21, State of New Jersey, 1969.

Climatological Data, Annual Summary New Jersey, 1977. National Oceanic and Atmospheric Administration, 1977.

Monthly Normals of Temperature, Precipitation and Heating and Cooling Degree Days 1941-70 New Jersey. National Oceanic and Atmospheric Administration, 1973.

The following on-file geotechnical reports were made available by Exxon (Bayway) Personnel:

Proposed Facilities ESCP Alcohol Ditch Area, Woodward Clyde & Associates, December, 1968.

Locker Building, Greer & McClelland, September, 1953.

Lower Tremley Tank Field Substation, Greer & McClelland, April, 1956.

40 Acre Tank Field, Greer & McClelland, May, 1953.

Waste Disposal Area (Reclamation Area) Greer Engineering, September, 1956.

Linden - Bayway Pipelines, Greer Engineering, August, 1955.

Tremley Tank Fields, Raymond Concrete Pile Co., April, 1949.

Proposed Off-Site Tankage - TK243 & 256, Leonard Yie Associates Inc., June, 1977.

Slop Oil Treating Plant, Greer & McClelland, August, 1953.

Proposed Waste Water Treatment Plant, Woodward-Clyde-Sherard & Associates, October, 1967.

The following USGS quadrangles were used in the preparation of the topographic map (Plate 2).

Kill, Arthur, New York - New Jersey. Topography based on 1955 Survey, revised 1966.

Arnboy, Perth, New York - New Jersey. Topography based on 1934 Survey.

Jersey City, New York - New Jersey. Topography based on 1953 Survey, revised 1966.

Rosell. New Jersey, Topography based on 1955 Survey, revised 1970.

RECEIVED

JUL 1 1987

EXXON
CHEMICALS

EXXON CHEMICAL AMERICAS

N.J. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR POLLUTION CONTROL

P. O. Box 23 Linden, New Jersey 07036-0023

June 30, 1987

BAYWAY CHEMICAL PLANT

Fugitive Emissions Monitoring
and Maintenance Report - 2087

Mr. Byron Sullivan
NJDEP
Metro Field Office
2 Babcock Place
West Orange, NJ 07052

Dear Sir:

This is the Fugitive Emissions Monitoring and Maintenance report for the Exxon Chemical Americas Bayway Chemical Plant for the Second Quarter of 1987 as required by NJAC 7:27-16.6.

Due to the large size of our facility and the need to quickly establish a complicated monitoring and maintenance program, Exxon Chemical Americas has hired a contractor, Roy F. Weston, Inc., to perform the quarterly monitoring and computer data entry.

While performing the fugitive emission monitoring, the Weston crew immediately attempted to repair most valves detected leaking. Since valves comprise over 95% of the total number of monitored components, almost all leaks receive immediate attention. Of course, not all valves can be repaired immediately and some require more extensive mechanical work, including replacement.

The total number of components monitored during the Second Quarter of 1987 was 7,209.

The total number of components that were found to be leaking during the Second Quarter was 250. All of these were repaired before July 1, 1987. The average time for repair was less than 10 days.

Attachment I lists all components detected leaking but not repaired within the 15-day time limit and not requiring a unit shutdown for repair.

Attachment II lists all components detected leaking but requiring a unit shutdown for repair.

Attachment E

Page 2

Fugitive Emissions Monitoring and Maintenance Report - 2087

As our program progresses, we expect that future monitoring rounds will show significant reductions in the number of leaks detected.

If you require any additional information, please contact Pat Parsons at (201) 474-7905.

Sincerely,

W.F. Kenney
W. F. Kenney

WFK/SM/pmd
Attachments

RAYWAY CHEMICAL PLANT
FUGITIVE EMISSIONS -- QUARTERLY REPORT
LIST OF COMPONENTS DETECTED LEAKING
BUT NOT REPAIRED WITHIN 15 DAYS
(NOT REQUIRING A UNIT SHUTDOWN)
SECOND QUARTER, 1987

ATTACHMENT 1

TAG

DESCRIPTION

BF0023	P701A DISCHARGE
BF0026	P704 SUCTION FROM BI BLEEDER
BF0032	P704 DISCHARGE BLEEDER
BF0038	P701A/B RECYCLE
BF0094	E703B INLET
BF0148	BFL705 DELTA P CELL LEADS
BF0362	M.O.V. 707B OUTLET BLEEDER
BF0381	BATTERY LIMIT #15 S/S (C.T.)
BF0417	BFP711V CONTROL VALVE
BFT702	BOTOMS TO CBU/D600 TEMP-BF0067
BI0196	R751/R752 1ST PLATFORM BLEEDER
BI0226	SAFETY VALVE #4087 DISCHARGE
KC0263	BLOCK TO LEVEL DISPLCR KCL212
KC0403	BLOCK FUEL GAS TO IPCS
KC0422	INSTR LEAD KCP201 IN PIPE RACK
P625B	BUT EX SEC BUT TRNS PMP-BE0159
PR0040	FC101 DISPLACER BOTTOM BLEEDER
LM0256	BLOCK VALVE FOR PIC14 (D9P)
LM0259	BLOCK VALVE FOR PIC14
LM0314	BLEEDER VALVE FOR FRC1
LM0655	BLOCK VALVE FOR BYPASS C.V.
VJ0052	BLOCK VALVE IN SPIKE LINE
VJ0552	FLUSH LINE TO LEVEL INSTRUMENT

TOTAL LEAKING NOT REPAIRED IN 15 DAYS:

23

EXXON CHEMICAL
BAYWAY CHEMICAL PLANT
FUGITIVE EMISSIONS -- QUARTERLY REPORT
LIST OF COMPONENTS DETECTED LEAKING
BUT REQUIRING A SHUTDOWN FOR REPAIR
SECOND QUARTER, 1987

ATTACHMENT 2

TAG	DESCRIPTION
BF0055	BFP714 BYPASS
BF0264	T701 2 PLTFRM E701A VENT TO VA
BF0268	T701 2 PLTFRM BLOCK ON ANTISUR
BF0488	D701B OUTLET
BF0539	D775 DP CELL
BF0725	TC TO SS971
BF0726	BLOCK TC TO SS971
BR0244	T632 UPPER GL. GAUGE TOP VALVE
BR0281	T632 LOWER TOWER DISPLC VALVE
C635	REG OLFIN CMP BUTYL REC-BR0386
C636	BR (N)REG OLEFIN COMP - BR0399
KC0068	BLOCK FROM DISCHARGE P201A
KC0135	BLOCK ON R202 TO F202
KC0152	BLOCK R203 OUTLET TO F202B
MOV707B	DISCHAR COMPRESS MOV MC-BF0361
P112A	ONST-SPLT INTR RFLX PMP-PR0358
PR0111	R111C REGEN GAS INLET
PR0122	R111B TRANSFER INLET
PR0128	R111A PRODUCT INLET
PR0172	R111A SAFETY INLET
PR0176	R111B SAFETY INLET
PR0210	PRF131 (PROD 2 DRIER) D/S SAFE
PR0254	DPCV6 UPSTREAM BLOCK
PR0304	P113B BYPASS
PR0316	P113A SUCTION DRAIN
PR0321	P113A SUCTION SAFETY INLET
PR0325	T2A B/S PRESSURE GAUGE
PR0341	P112B DISCHARGE
PR0366	P112B SUCTION MOV112
PR0374	P112A DISCHARGE
PR0386	PRF127 D/S BLOCK (E113B OUTLET)
PR0391	PRF127 D/S BLOCK (E113B OUTLET)
PR0395	PRF126 D/S BLOCK (E113A OUTLET)
PR0401	PRF126 BYPASS (E113A OUTLET)
PR0447	E113 PUMP OUT TO E114
PR0452	E114 INLET
PR0544	SS102 BOTTOM BLOCK VALVE
PR0546	SS103 BOTTOM BLOCK VALVE
PR0562	P103B DIS. BLOCK VLV TO ABW
PR0632	PRODUCT R/D TO SS102
PR0658	PROD RD TO TW RACK - NORTH
RR0052	CBF656 CONTROL VALVE BYPASS

TOTAL LEAKING REQUIRING SHUTDOWN:

40003 #1 file

EXXON COMPANY, U.S.A.

POST OFFICE BOX 222 • LINDEN, NEW JERSEY 07036

RECEIVED

SEP 12 1987

N.J. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR POLLUTION CONTROL

REFINING DEPARTMENT
BAYWAY REFINERY

September 8, 1987

Fugitive Emissions Program

Mr. Byron Sullivan
Department of Environmental Protection
Bureau of Field Operations
Metro Field Office - Room 510
2 Babcock Place
West Orange, NJ 07052

Dear Mr. Sullivan:

Tabulated below is data on the Bayway Refinery's Volatile Organic Substance (VOS) quarterly emission testing program for 2nd Quarter 1987 as specified in New Jersey Administrative Code (NJAC) 7:27-16.6f.

Table I lists all leaking components tested through June 30, 1987 whose repair is awaiting a process unit shutdown.

All other components detected leaking during the second quarter of 1987 were repaired within 15 days.

The total number of refinery components as defined by 7:27-16.6f that were tested this quarter is 7,108.

The total number of refinery components detected leaking from April through June 1987 is 200.

If you need additional information, please call Sherman Brown at (201) 474-6390.

Very truly yours,

W. L. Taetzsch/HCL

W. L. Taetzsch
Environmental Coordinator

SCB/dho
Attachments

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY

FIELD RECORD OF VIOLATION

VIOLATION DATE 10/24/85 TIME AT SITE 11:20 AM 2:30 PM 10:00 AM 11:20 PM I.D. # 40064

OFFICE/BUREAU Metro

PERSON IN VIOLATION	Sec. A	FULL BUSINESS NAME <u>Exxon Chemical Americas</u> MAILING ADDRESS <u>PO. Box 23</u> <u>Linden</u> <u>07036</u> TYPE OF OWNERSHIP: <input type="checkbox"/> Individual <input type="checkbox"/> Partnership <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Municipal NAME OF OWNER, PARTNERS, OFFICERS, OFFICIALS <u>Steve DeDman</u> TITLE <u>PLANT MANAGER</u> PERSONS INTERVIEWED <u>PAT PARSONS</u> PHONE: <u>(201) 474-7905</u> PERSON AUTHORIZED TO RECEIVE PROCESSES <u>EDWIN K. LARGE JR. - REGISTERED AGENT</u> MAILING ADDRESS <u>117 MAIN ST</u> <u>FLEMINGTON NJ</u> <u>08822</u> REMARKS:
	LOCATION OF VIOLATION	LOCATION ADDRESS <u>1400 PARK AVE</u> <u>Linden</u> <u>UNION</u> PREMISES OCCUPIED AS: <input checked="" type="checkbox"/> Owner <input type="checkbox"/> Lessee <input type="checkbox"/> Tenant OWNER <u>EXXON COMPANY USA</u> <u>PO. Box 53</u> <u>HOUSTON TX</u> CODE REFERENCE: Chapter(s) <u>7:27</u> Section(s) <u>5.2</u> Paragraph(s) <u>(a)</u> DETAILS <u>INVESTIGATION DISCLOSED THAT EXXON CHEMICAL EMITTED INTO THE OUTDOOR ATMOSPHERE SUBSTANCES IN QUANTITIES WHICH DID RESULT IN AIR POLLUTION. SPECIFICALLY, FUGITIVE MERCAPTAN ODORS FOUND TO BE EMANATING FROM KNOCK OUT UNIT 9-D-11 OR ITS IMMEDIATE LOCATION CAUSED BY A LEAK OR SPILL OF CONTAMINATED EFFLUENT FROM PARANOX UNIT #1 RESULTING IN VERIFIED CITIZEN COMPLAINTS.</u> REMARKS RECOMMENDED ACTION <u>Review FOR ADMINISTRATIVE ACTION</u>

Reviewed By _____ Date _____

_____ Date _____

Patrick J. DiGangi
Inspector's Signature
PATRICK J. DIGANGI
Print Name
ENVIRONMENTAL SPECIALIST
C-1021-TS
Title

MIDDLESEX COUNTY
HEALTH DEPARTMENT
AIR POLLUTION
CONTROL PROGRAM

MIDDLESEX COUNTY HEALTH DEPARTMENT
Investigation Summary

1021-85-1-22

PLACE Exon Chemical Americas
LOCATION 1400 Park Ave. Linden
No. Street Municipality
MAILING ADDRESS P.O. Box 23 Linden
PERSON(S) INTERVIEWED Pat Parsons Env. Engineer
Title
11:20 AM 2:30 PM Title
☒ PREMISES ENTERED / TIME IN 10:00 a.m. OUT 11:20 a.m.
☐ N.C.A. ☒ N.# 3805 SPECIFIC

COMPLAINT # ✓ FI #
DATE 10/2/85 TIME _____ a.m.
CHAPTER REF. _____
☐ SINGLE ☒ MULTIPLE 22
CLIMATIC CONDITION:
☐ Clear ☒ Cloudy ☐ Fog
☐ Rain ☐ Snow
WIND: Vel. 6-12 TEMP. 56°C
Dir. W-SW

OBSERVATIONS

As a result of Complaint # 1021-85-1-22 regarding Exxon odors, I was travelling northbound on the New Jersey Turnpike en route to Bayway Refinery. As I passed due East and north of Exxon, I detected the same type of oily mercaptan odor^{#2} that had been released by Exxon west side Chem Plant on Oct 2, 1985. I then entered Exxon and met with Pat Parsons who led me on a tour with John Walsh, DEP, and Jim Monfiala, USEPA. Together we visited Drum D-30 (Box of flue), west separator, Biox tanks and filter house all without any odor verification. We then visited knockout drum 9-D-11 and there located and verified the odor I had detected on the turnpike. Pat Parsons said that the 9-D-11 unit was storing some of the effluent from the Oct 2 release and some of the material may have leaked or spilled resulting in residual fugitive mercaptan odor.

RECOMENDATIONS

Review for administrative action.

INVESTIGATED BY:

ASSISTED BY:

signed

signed

title

title

PROCESSED FOR FURTHER ACTION

Leveaux Super.
C.T. Dixon 11-14-85 Date
Specific

APPROVED BY:

D 11/15
E

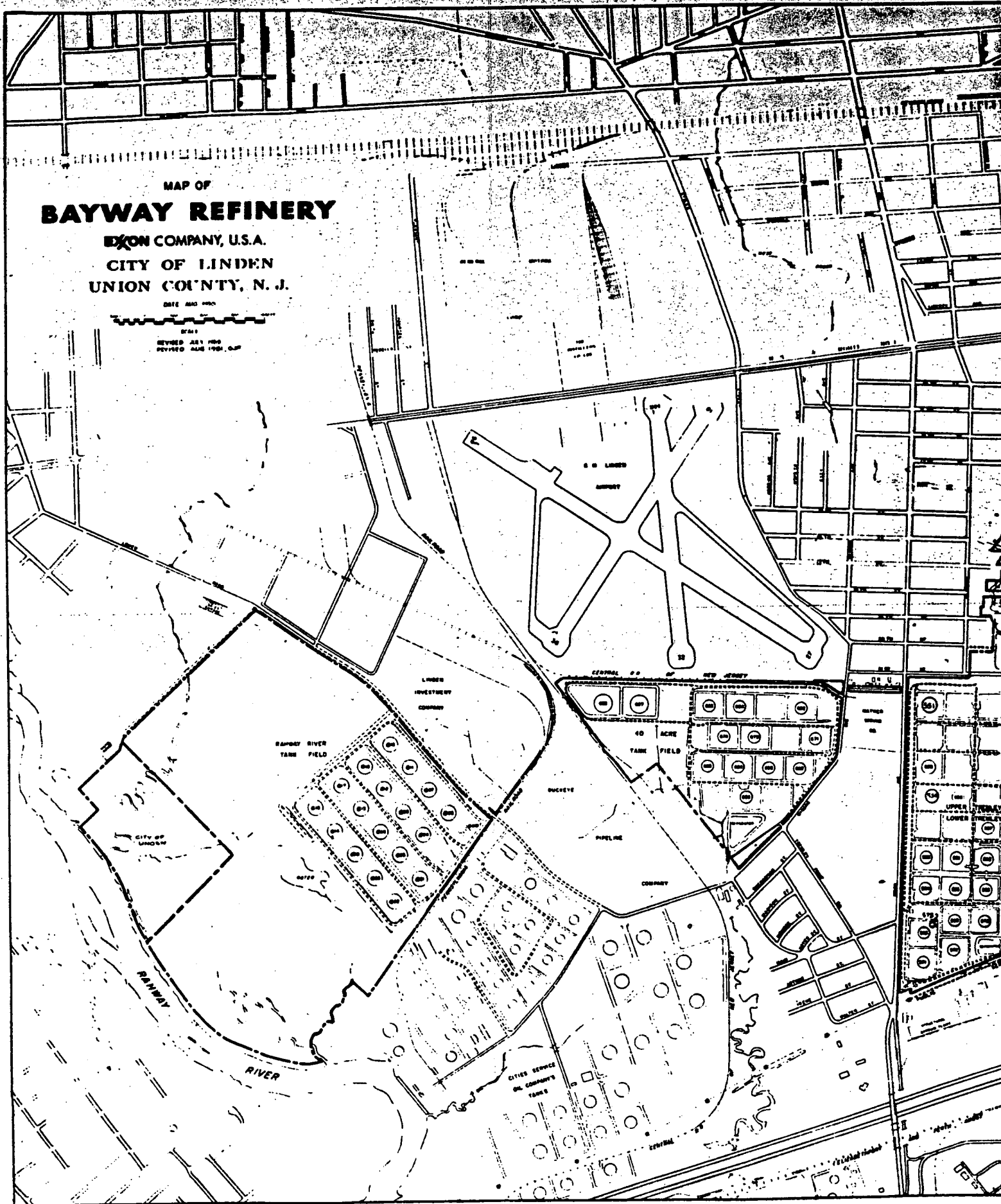
MAP OF
BAYWAY REFINERY

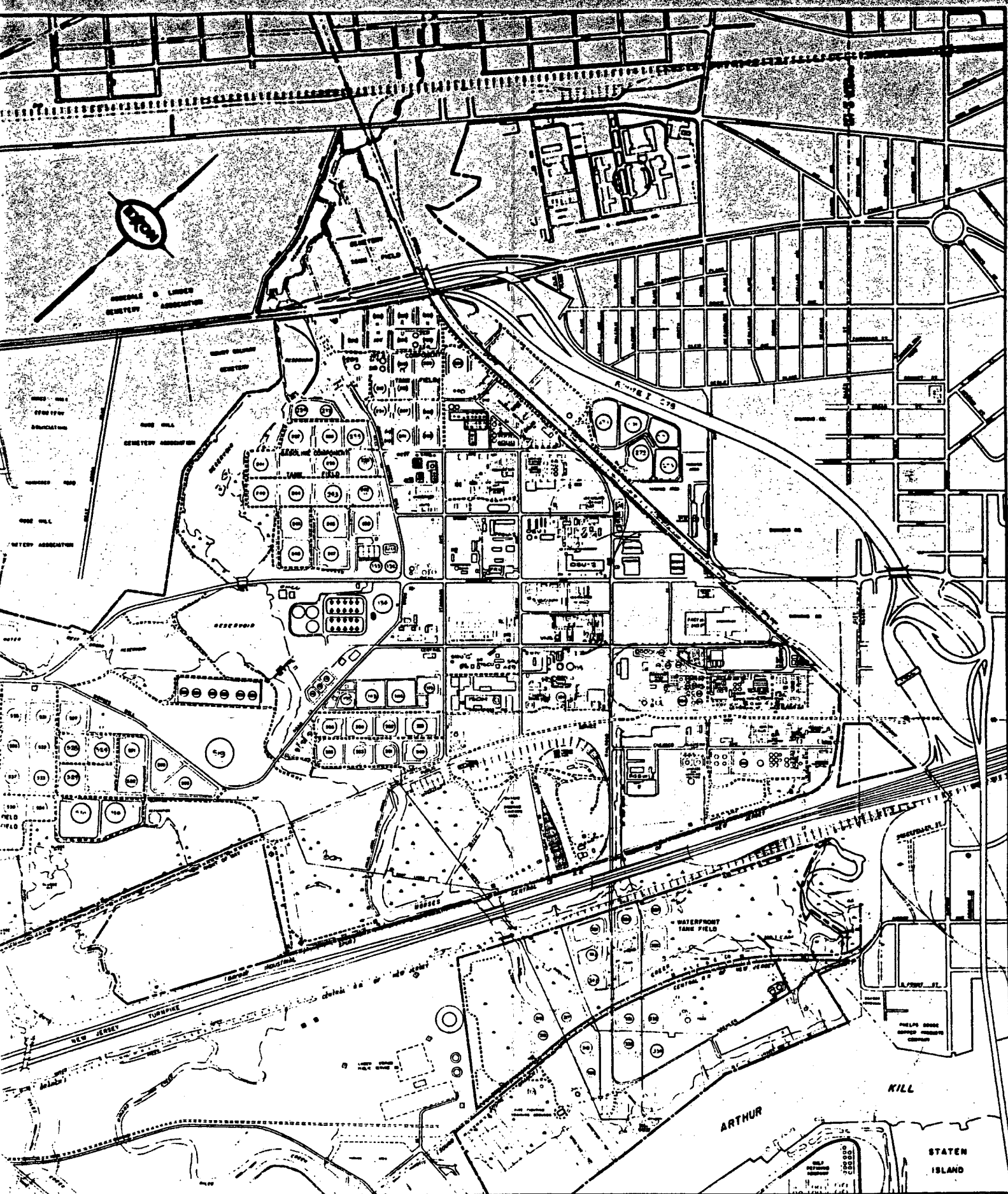
EXXON COMPANY, U.S.A.
CITY OF LINDEN
UNION COUNTY, N. J.

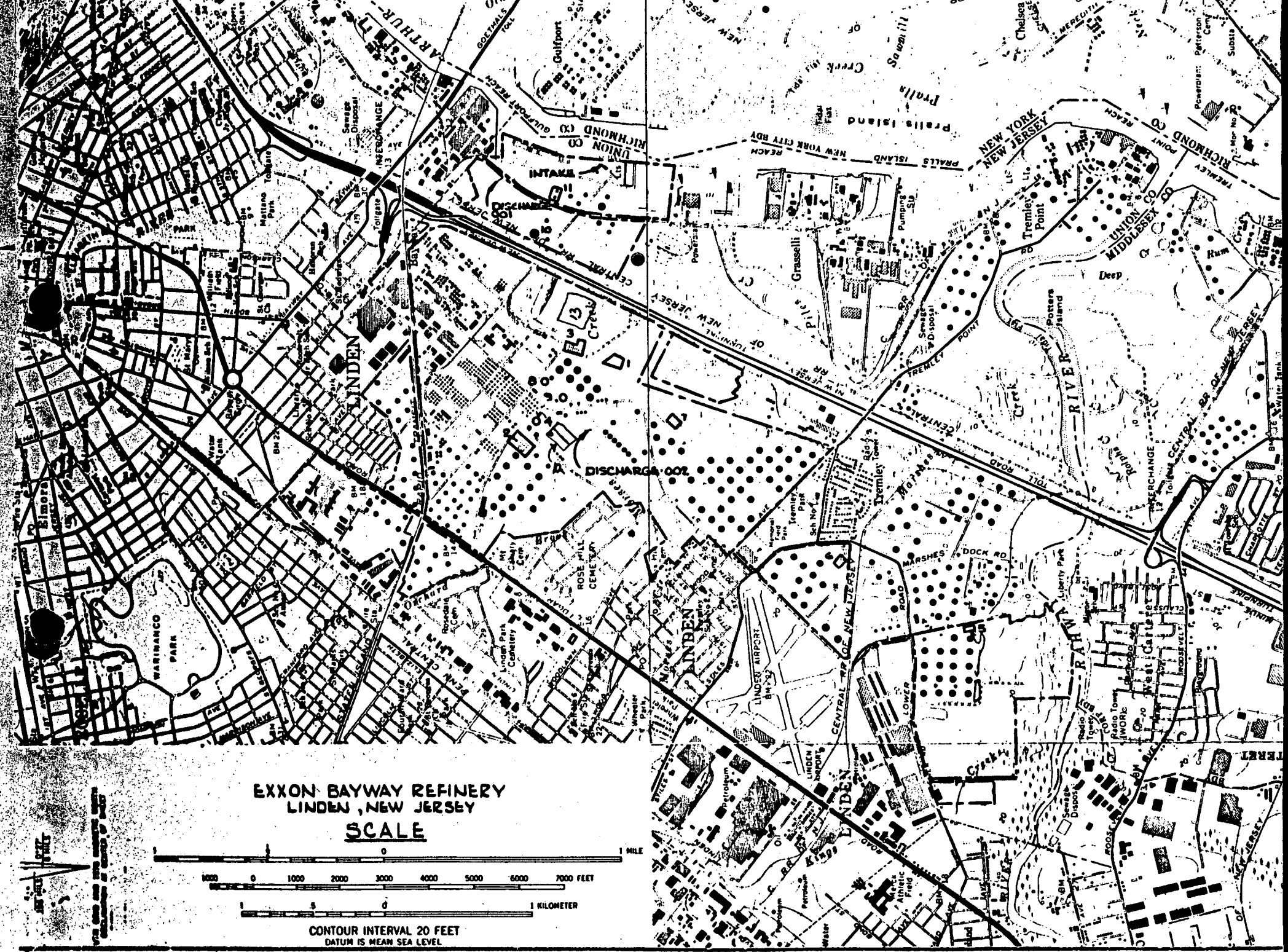
DATE AND WHO



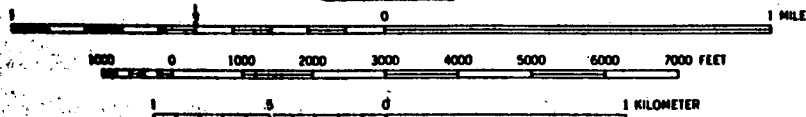
REVISED JAN 1960
REVISED AUG 1961, G.P.







EXXON BAYWAY REFINERY
LINDEN, NEW JERSEY
SCALE



CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

EXXON BAYWAY REFINERY

7.5' USGS MAP

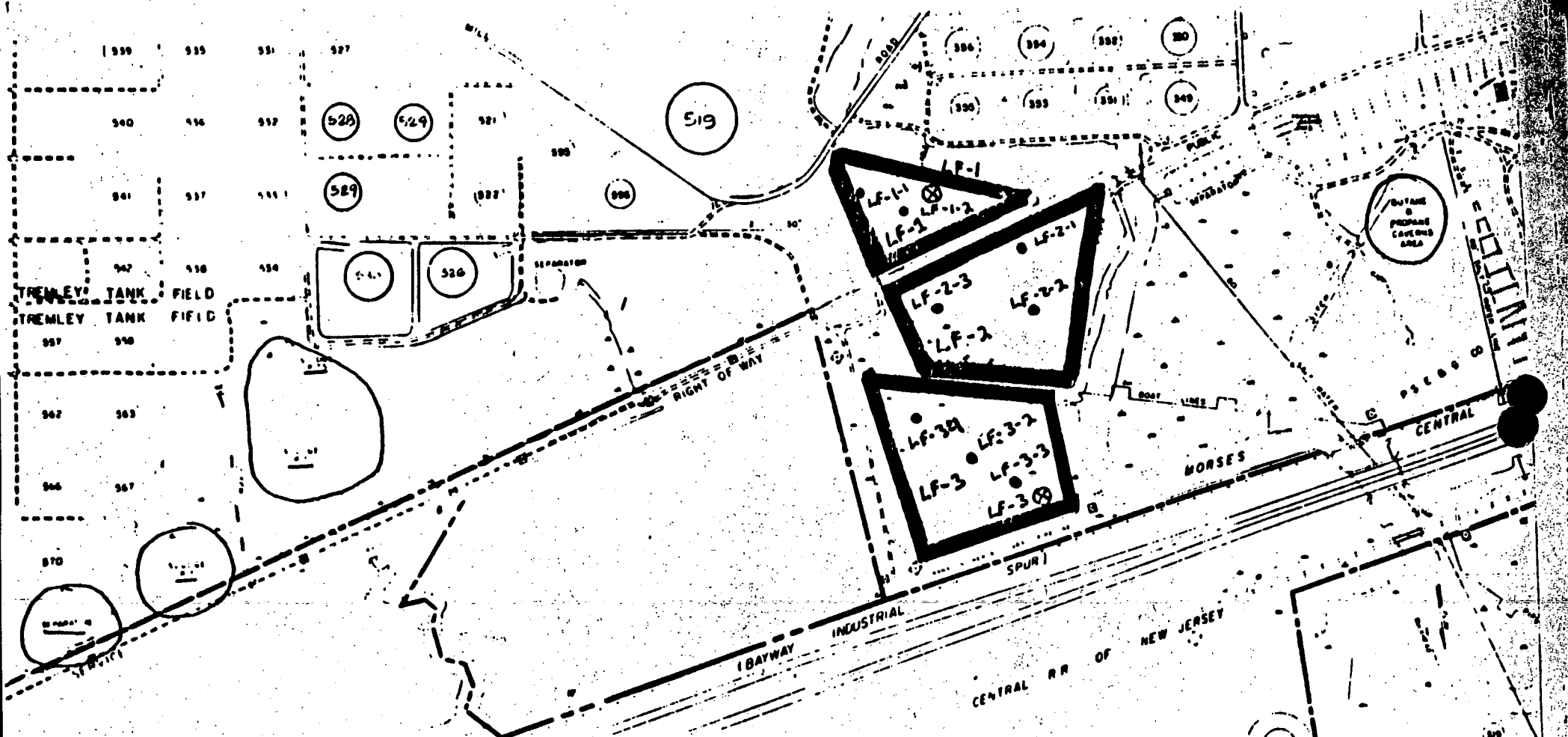
Facilities Key

Item No

Facility

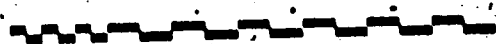
- | | |
|-------------|---|
| 1 | ✓ Landfarm |
| 2 | ✓ West Separator (Concrete) |
| 3 | ✓ East Retention Basin (Concrete) |
| 4 | Stormwater Tank 136 |
| 5 | ✓ Rahway River Stormwater Impoundments |
| 6 | ✓ 40 Acre Stormwater Impoundment |
| 7 | ✓ Tremley Stormwater Impoundment |
| 8,9,10,& 11 | ✓ Caustic Tanks |
| 12 | ✓ Secondary Waste Treatment Facility |
| 13 | ✓ Underground Hydrocarbon Storage Caverns |

Site Boundaries _____



MAP OF BAYWAY REFINERY

EXXON COMPANY, U.S.A.
CITY OF LINDEN
UNION COUNTY, N. J.



REVISIONS
REVISED AUG 1981 G.F.
REVISED FEB 1982 G.F.

Legend
Landfills (Red)
● Boring Location
⊗ G/w well Location

Hazardous & SUSPECTED HAZARDOUS SITES JERSEY

DWM ID #: (NJD062037031) Site Name: (EXXON CHEM)

Also Known As: EXXON BAYWAY REFINERY

County-Munic # (2009)

Municipality: (LINDEN CITY)

County : (UNION) 07036

Street Address: 1400 PARK AVE

Lead : ()

Latitude: 403540 & Longitude: 741500

Catagory : E (K or S)

Block(s) -

Lot(s) -

ECKHARDT, HYDROCARBON RECOVERY OPPORTUNITY
NJPDES# 001511-Type 5 NJPDES# -Type 0

DHSM Management Plan? (Y/N) RCRA Facility? Y (Y/N) ECRA Facility? (Y/N)

F1=Help F2=Back Window F3=Superfind F4=Print Screen F6=Delete F9=Clear Window
F10=Save TAB=Find ESC=Return to Menu PgUp=Previous Record PgDn=Next Record

Site Name: EXXON CHEM

Priority Status:

PRELIMINARY ASSESSMENT INFORMATION

PA Person Hours: 0

Date Referred to BSA:

- by:

Severity Index Score: 0.00

PA Assigned to:

- Date:

PA Form Due:

PA Completed:

Submitted to EPA:

Funding Source: SUPERFUND

SITE INSPECTION INFORMATION

SI Person Hours: 0

SI Assigned to:

- Date:

SI Form Due:

Pre-Sampling Assessment:

Inspection:

SI Form Completed:

- by:

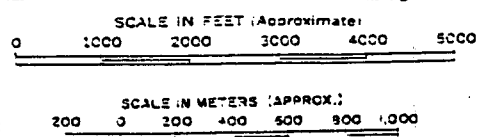
SI Form Submitted
to EPA:

SI Comments : RCRA SI CONDUCTED 5/29/86. SEVERAL AREAS OF CONCERN, REFER TO
RFA. DOCUMENTED ONSITE GROUNDWATER CONTAMINATION.

F1=Help F2=Back Window F3=Superfind F4=Print Screen F6=Delete F9=Clear Window
F10=Save TAB=Find ESC=Return to Menu PgUp=Previous Record PgDn=Next Record



Exxon Chemicals
1400 Park Avenue
Linden
Union County



ARTERET

MAP OF
BAYWAY REFINERY
EXXON COMPANY, U.S.A.
A DIVISION OF ESSO CORPORATION
CITY OF LINDEN
UNION COUNTY, N. J.

Scale: 1" = 1/4 MILE
1/4" = 1/8 MILE
1/8" = 1/16 MILE
1/16" = 1/32 MILE

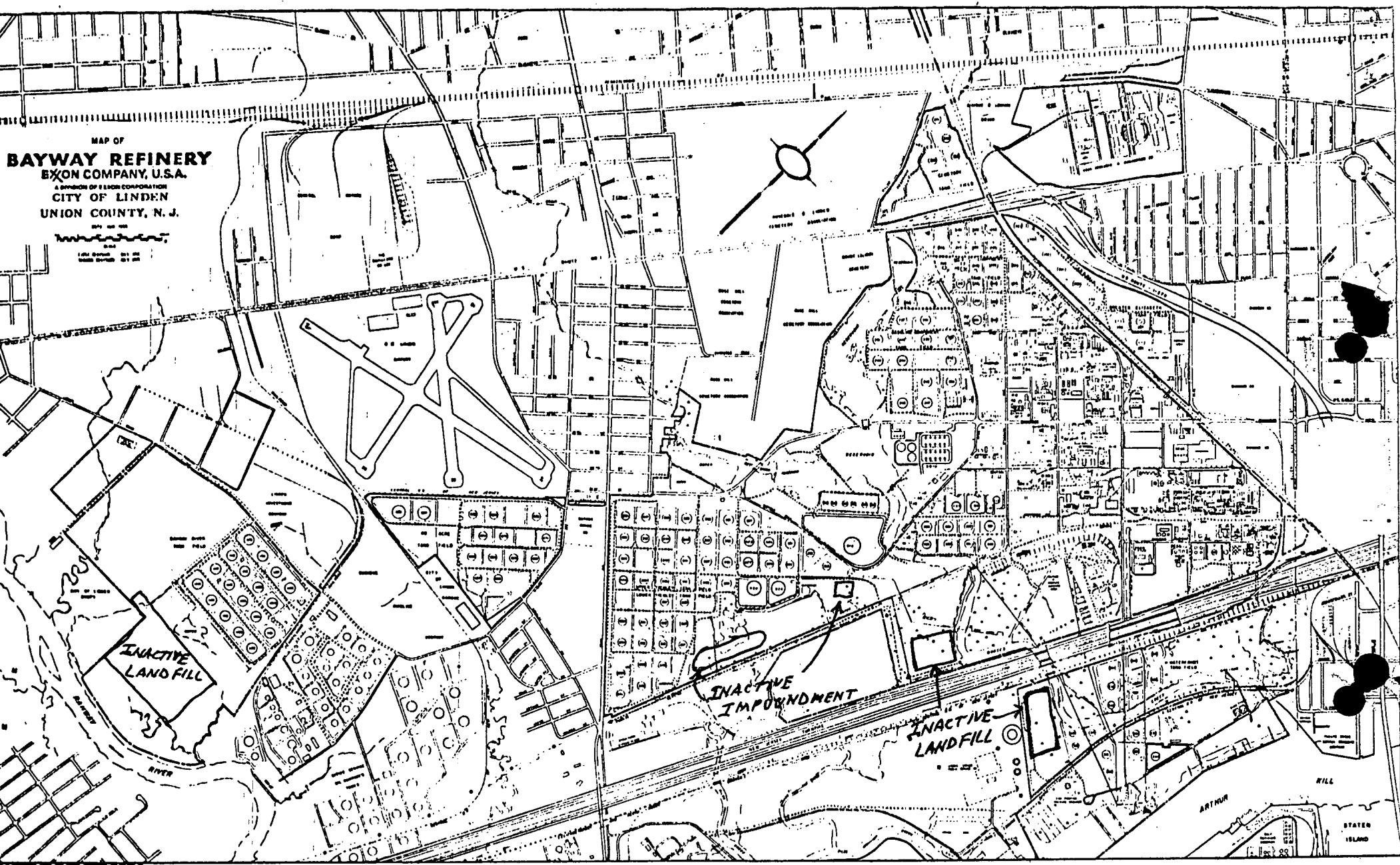


TABLE I

All leaking components whose repair is awaiting a process unit shutdown.

<u>Tag No.</u>	<u>Date Detected</u>	<u>Unit</u>
B266	6/04/87	DSUI
CG1134	4/07/87	ISOM
CG1146	4/07/87	ISOM
CG1193	4/11/87	ISOM
CG1335	4/16/87	ISOM
CG1527	4/16/87	ISOM
CG1551	4/20/87	ISOM
CG1561	4/18/87	ISOM
CG1687	4/20/87	ISOM
CG1956	4/18/87	ISOM
CG1968	4/18/87	ISOM
CG2033	4/30/87	ISOM
CG1201	4/11/87	ISOM
CG1220	4/11/87	ISOM
CG1566	4/18/87	ISOM

SCBrown/dho
09/02/87



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
2 BABCOCK PLACE
WEST ORANGE, NEW JERSEY 07052

M E M O R A N D U M

TO: B. Sullivan

FROM: M. Pratt

SUBJECT: Exxon Company, 40003 #1 FILE

DATE: March 9, 1987

PURPOSE: Information of a spill and/or air contaminants release

Per request of N.J. D.E.P. press officer I called the following Exxon Comp.

Environmental personnel:

1. P.J. Parsons-staff Env. Eng., Exxon Chemical Americas, plants in Bayonne and Linden.

Statement: We are not aware of problems on March 08 or 09, 1987.

2. Lisa McGraf - Env. Coordinator, Exxon Company, U.S.A., Bayonne plant.

Statement: Over the weekend some solvent was spilled from a railroad car in Ridgefield.

Note: Our B.E.R was aware of this problem.

3. John Tavis - Terminal Mgr., Exxon Marketing, Linden plant.

Statement: We didn't have problems.

4. Vince T. Dee - Env. Compliance Coordinator, Exxon Research & Engineering, Florham Park facilities.

Statement: Not aware of any problems.

5. Steven Rice - Env. Eng., Exxon Research & Engineering, Clinton and Linden facilities.

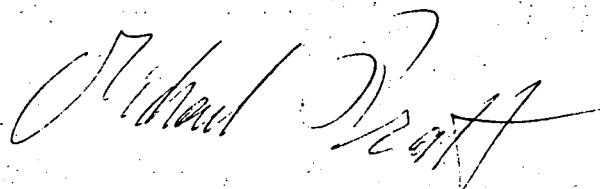
Statement: Same as above item #4 (i.e. not aware of problems).

6. At about 3:00 p.m. Mr. Bill Taetzsch Environmental Coordinator, Exxon Company, U.S.A., Linden plant, called back with the following information.

- a. On Sat., March 7, 1987 spilled oil was noticed in Arthur Kill water. The oil didn't originate from Exxon Comp. U.S.A. plant or from one of their ships. Contractor was called to clean up this spill. Note: Our B.E.R. was aware of this problem.
- b. Last Friday night (March 6, 1987) cat cracker light end tower was removed from service because of malfunctioning safety valve. Subject valve was repaired on Sat. March 7, 1987. The tower was put on line Sunday night, March 8, 1987. Linden Fire Dept. was alerted to possible flaring, which usually is associated with a start up.
- c. Early this morning (March 09, 1987 at 1 or 2 a.m.) two Exxon Comp., U.S.A. employees working in the vicinity of the sulfur plant were exposed to H_2S . According to Bill Taetzsch, Exxon Company, U.S.A., Linden plant doesn't have its own medical services during the night shift. Therefore these two men were sent to Alexian Brothers Hospital in Elizabeth. They were sent back from the hospital to the plant after about a half hour check up. H_2S effected only these two men.

Recommendation: File Exxon Company U.S.A., ID# 40,003

Michael Pratt





40,003 File #5.1 Cont 3
MIDDLESEX COUNTY HEALTH DEPARTMENT

AIR POLLUTION CONTROL PROGRAM
280 HOBART STREET, ROOM 518
PERTH AMBOY, N.J. 08861
(201) 826-3100

LASZLO SZABO, M.P.H., M.P.A.
DIRECTOR

RICHARD J. HILLS
PROGRAM COORDINATOR

April 9, 1987

Mr. Byron Sullivan
Supervisor
Metro Field Office
N.J.D.E.P.
Bureau of Air Pollution Control
2 Babcock Place
West Orange, NJ 07052

Re: Exxon Plant Entry

Dear Byron:

I have enclosed, as a request by Mike Pratt, a list of all plant inspections at the above mentioned company along with a list of all dates that we checked the area after receiving odor complaints. Time period involved is starting October 1984 thru October 1985.

I hope this information is of some help to you in your endeavors.

Please feel free to call if you have any questions concerning the above.

Very truly yours,

ALAN H. LAURITSEN
ADMINISTRATIVE ANALYST

AHL/ck
Enclosures

RECEIVED

MAY 6 1987

CO. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR POLLUTION CONTROL

E

MIDDLESEX COUNTY HEALTH DEPARTMENT

PLANT INSPECTIONS CONDUCTED

EXXON REFINERY

DATE	C#	REASON	ACTION TAKEN
10/29/84	928-84	Sour Gas odors due to malfunctioning ABW flare.	Local court violation of section 6.1 and fugitive sour gas odors - 5.2(a).
10/26/84	923-84	Rotten cabbage odor.	NCA
10/30/84	932-84	Sour Gas odors due to malfunctioning ABW flare.	Local court violation of section 6.1 and fugitive sour gas odors - 5.2(a).
10/31/84	FU# 307-84	Check if on line.	NCA
11/03/84	FI# 108-84	Opacity from old CO boiler.	NCA, under ACO
11/27/84	FI# 112-84	HC odor on Rts. 1&9.	NCA
12/03/84	1045-84	Catalyst dust release	Local court violation of section 6.1 and 8.3(e)2 catalytic converter & associated equipment not functioning properly.
12/04/84	1053-84	Black smoke from CLEU flare	Local court violation of section 5.5 and 11.3b to State-was recinded.
1/17/85	040-85	Odor complaints.	NCA
1/30/85	FU# 014-85	Order 22765-5.2(a)	NCA - in compliance.
1/30/85	FU# 015-85	Order 22764-5.2(a)	NCA - in compliance.
2/14/85	FU# 062-85	Check CLEU flare.	NCA - in compliance.
4/16/85	237-85	Sour gas odor from CLEU flare	Local court violation of section 6.1.
4/23/85	257-85	Bad odor.	NCA
5/23/85	370-85	Bad odor.	Held in abeyance.
6/11/85	449-85	Bad odor.	NCA
7/24/85	604-85-B	Petro chemical odor.	NCA

EXXON REFINERY CONT.

DATE	C#	REASON	ACTION TAKEN
8/06/85	662-85	Sour gas odor.	NCA
8/13/85	704-85	Paranox odor.	NCA
9/17/85	905-85	Black smoke less than 3/4 minute.	Warning Local section 5.5

MIDDLESEX COUNTY HEALTH DEPARTMENT

PLANT INSPECTIONS CONDUCTED

EXXON CHEMICAL AMERICA'S

DATE	C#	REASON	ACTION TAKEN
10-13-84	854-84	Paranox odors.	Local court violation of Section 6.1
10-22-84	907-84	Terrible smell.	NCA - Not verified.
4-03-85	216-85	Pungent chemical odor.	Local court violation of Section 6.1
4-22-85	253-85	Rotten egg odor.	Light paranox detected NCA.
6-07-85	439-85	Paranox odor.	Local court violation of Section 6.1
7-12-85	553-85	Paranox odor.	Spent scrubber solution 8.3(3)2. Local court violation of Section 6.1
8-07-85	666-85	Exxon odor.	NCA
10-21-85	1014-85	Hydrogen Sulfide Mercapton odor.	5.2(a) fugitive Mercap-tan odors, 11.3(d) paratone flare allowing fugitive odors to escape.
10-22-85	1016-85	Odors from Exxon.	Resulted from previous day's release. NCA
10-23-85	1019-85	Odors from Exxon.	5.2(a) fugitive Mercap-tan odors.
10-24-85	1021-85	Odors from Exxon.	5.2(a) fugitive Mercap-tan odors.
10-26-85	1041-85	Odors from Exxon.	5.2(a) fugitive Hydrog sulfide odors.
10-27-85	1032-85	Odors from Exxon.	Combined with violation of C# 1041-85.

MIDDLESEX COUNTY HEALTH DEPARTMENT

PLANT INSPECTIONS CONDUCTED

EXXON MARKETING

DATE	#	REASON	ACTION TAKEN
10-05-84	FI# 097-84	Check Vapor Recovery Unit	NCA In compliance
10-17-84	FI# 102-84	Check Vapor Recovery Unit	NCA In compliance
11-15-84	FI# 111-84	Check Vapor Recovery Unit	NCA In compliance
1-29-85	FI# 009-85	Check Vapor Recovery Unit	NCA In compliance
3/11/85	FI# 029-85	Check Vapor Recovery Unit	NCA In compliance

MIDDLESEX COUNTY HEALTH DEPARTMENT

EXXON REFINERY FILE

NO PLANT ENTRY

EXXON POSSIBLE SOURCE

DATE	#	REASON
10-29-84	C# 926-84	Sulfur odors.
10-29-84	C# 927-84	Dirty air, sulfur smell.
10-31-84	C# 939-84	Unbearable smell.
11-04-84	C# 958-84	Cloud of flame & odor.
11-13-84	C# 983-84A	Headache & nausea from odor.
11-13-84	C# 983-84B	Smoke.
12-13-84	C#1044-84	Chemical odor.
1-14-85	C# 033-85	Bad odor from Bayway Refinery
1-25-85	C# 050-85	Bayway Refinery odor.
3-04-85	C# 153-85	Sulfur odor.
3-11-85	C# 173-85	Bayway Refinery odor.
3-11-85	C# 174-85	Flames & black smoke
3-11-85	C# 168-85	Bad odors.
4-05-85	C# 220-85	Refinery smell, like bug sprays
4-12-85	C# 231-85	Sulfurdioxide odor.
4-20-85	C# 247-85	Terrible smell, can't breathe
4-22-85	C# 253-85	Rotten egg odors.
4-26-85	C# 272-85	Sewage, horrible odor.
4-27-85	C# 274-85	Chemical odor.
4-29-85	C# 281-85	Rotten Eggs.
5-01-85	C# 307-85	Bad odor.
5-09-85	C# 309-85	Rotten egg.
5-09-85	C# 311-85	Open burning - fire training

EXXON POSSIBLE SOURCE CONTINUED

DATE	#	REASON
5-29-85	C# 388-85	Very bad odor.
5-30-85	C# 402-85	Very bad odor.
6-01-85	C# 409-85	Burning rubber odor.
6-02-85	C# 411-85	Refinery odor.
6-04-85	C# 419-85	Very bad odor.
6-09-85	C# 442-85	Burning hydrocarbon and rotten egg smell, also noisy.
6-11-85	C# 451-85	Strong, bad egg odor.
6-29-85	C# 505-85	Open flame at Exxon.
7-02-85	C# 515-85	Choking smell.
7-04-85	C# 520-85	Terrible odor.
7-05-85	C# 526-85	Rotten egg smell.
7-05-85	C# 522-85	Choking, eyes burn, sulfur odor.
7-09-85	C# 532-85	Odor giving headache.
7-10-85	C# 548-85	Sickening odor.
7-24-85	C# 604-85A	Smoke.
7-25-85	C# 603-85	Bad odor.
7-28-85	C# 619-85	Heavy chemical smell.
7-31-85	C# 644-85	Rotten egg odor.
8-02-85	C# 651-85	Rotten egg.
8-03-85	C# 652-85	Sulfur smell.
8-05-85	C# 657-85	Gas, choking odor.
8-06-85	C# 658-85	Head, eye, throat hurt.
8-13-85	C# 710-85	Burnt smell.
8-26-85	C# 779-85	Burning eyes, nose, face.
8-30-85	C# 805-85	Bad odor.
9-05-85	C# 832-85	Sauerkraut smell.

EXXON POSSIBLE SOURCE CONTINUED

DATE	#	REASON
9-16-85	C# 866-85	Terrible odor.
9-19-85	C# 880-85	Linden Police received 3 complaints of Exxon odor.
9-30-85	C# 928-85	Rotten cabbage.
9-30-85	C# 929-85	Rotten eggs.
10-02-85	C# 936-85	Fuel odor.
10-17-85	C# 986-85	Rotten eggs.



DEPARTMENT OF HEALTH
COUNTY OF MIDDLESEX, NEW JERSEY
417 DENNISON STREET
HIGHLAND PARK, N.J. 08904
(201) 828-8100

LASZLO SZABO, M.P.H., M.P.A.
DIRECTOR

No. 3808

NOTICE OF VIOLATION

November 18, 1985

TO: Mr. Steve Dedman
Plant Manager
Exxon Chemical Co. U.S.A.
P.O. Box 23
Linden, New Jersey 07036

RE: AIR POLLUTION CODE OF
THE City of Linden

VIOLATION EXISTS AT THE PREMISES
KNOWN AS: Exxon Chemical Americas
Westside Plant
Linden, New Jersey
Plant ID# 40064

DEAR SIR:

An investigation or inspection by Agency personnel was conducted at the premises noted above on 10/24/85. The investigation or inspection disclosed that a violation of Section 6.1 (see below) of the Air Pollution Control Code Ordinance of the City of Linden did exist at Tank 9D11 and associated equipment (incorporated under P/CT# 22809) and surrounding area throughout the day.

This violation makes you liable to prosecution under the ordinance cited. This notice should not be construed as to relieve you from liability under the aforementioned ordinance. A separate offense shall be deemed committed on each day during, or on which, a violation occurs or continues. You are therefore requested to take those necessary steps to correct this condition.

SECTION 6.1: The investigation or inspection discloses the causation, suffering, allowing, or permitting to be emitted into the open air, substances in such quantities as did result in air pollution.

Specifically: Fugitive Mercaptan Odors

- ☐ This notice shall be regarded as a warning notice provided that the violation does not continue or recur.
- ☐ This violation is being processed for legal action in Municipal Court.
- ☒ This violation is being forwarded to the New Jersey Bureau of Air Pollution Control for a violation of N.J.A.C. 7:27 5.2 et. seq. section (a).
- ☐ Other:


RICHARD J. HILLS
Program Coordinator

XXXXXXXXXXXXXXXXXXXX

C# 1021-85-1-22, Inspector DiGangi

CC: N.J. Bureau of Air Pollution Control, M.F.O. XXXXX.
Sent Regular Mail

E



MIDDLESEX COUNTY HEALTH DEPARTMENT

AIR POLLUTION CONTROL PROGRAM
280 HOBART STREET, ROOM 518
PERTH AMBOY, N.J. 08816
(201) 826-3100

90064
John F.Y.I.
LASZLO SZABO, M.P.H., M.P.A.
DIRECTOR

RICHARD J. HILLS
PROGRAM COORDINATOR

November 18, 1985

Mr. Harold Christiff
Case Coordination
N.J. Dept. of Environmental
Protection
Div. of Environmental Quality
John Fitch Plaza
CN 027
Trenton, New Jersey 08625

Re: Exxon Chemical Americas
DEQ-012, 5.2(a), 10/24/85

Dear Harold:

Attached, per our discussions, is an original and copy of the referenced DEQ. Additionally, I have included a copy of our investigation summary on this particular day.

Please note, that this documented violation constitutes the fourth continuing day of the October 21, 1985 incident.

Please call me should you have any questions concerning this matter.

Very truly yours,


RICHARD J. HILLS
PROGRAM COORDINATOR - AIR

RJH/ch
Attachment

cc: Allan Edwards
Andrew Bara ✓

C# 1021-85

E

TABLE OF CONTENTS

Attachment I	-	EPA Questionnaire
Table I	-	Landfills
Attachment II	-	Waste Classification List
Attachment III	-	Soil Boring and Groundwater Data for Facilities LF-1, 2, 3
Attachment IV	-	Refinery Map Showing Facility Locations

Attachment F

ATTACHMENT I

Information Regarding Potential Hazardous Waste and Hazardous Waste
Constituent Releases From Solid Waste Management Units

Facility Name: Exxon Co. USA Bayway Refinery

EPA I.D. No.: NJD 062037031

Location: Street 1400 Park Avenue

City & State Linden, New Jersey 07036

Check: owner x operator x

Please review the following definitions prior to proceeding to page 2.

- I. Under the Resource Conservation and Recovery Act (RCRA) amendments of 1984, the term "solid waste" means any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, or byproduct material as defined by the Atomic Energy Act of 1954.
- II. A hazardous waste is a solid waste that is either listed in 40 CFR; Part 26 Subpart D ("List of Hazardous Wastes") or possesses one or more of the characteristics identified in 40 CFR; Part 261; Subpart C ("Characteristics of Hazardous Waste") and is not excluded in 40 CFR 261.4.
- III. A Hazardous Waste Constituent represents the basis for a specific hazardous waste being listed in 40 CFR; Part 261; Subpart D. The Hazardous Waste Constituents are listed in 40 CFR; Part 261; Appendix VIII (Hazardous Waste Constituents).
- IV. The term "solid waste management unit" (SWMU) applies to any landfill, surface impoundment, land farm, waste pile, incinerator, tank, injection well, transfer station, waste recycling operation, tank or container storage area that currently or formerly was used to manage a solid waste.
- V. Under the requirements of the Hazardous and Solid Waste Act Amendments of 1984, Section 3004U of the RCRA amendments mandates that EPA address contamination caused by prior releases of hazardous wastes and hazardous waste constituents from solid waste management units, Regardless of the time when the waste was placed in the unit or when the unit was closed.
- VI. The term "tank" includes wastewater treatment units, elementary neutralization units and short-term accumulation units that are exempted from RCRA permit requirements.
- VII. The term "release" includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment, but excluding releases otherwise permitted under law (e.g., NPDES permitted discharges).

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	X	
• Surface Impoundment	yes - Bios, separator	X
• Dump-pit or Leach Field	yes (sludge pits)	X
• Land Farm		X
• Waste Pile - 2		X
• Incinerator		X
product { • Storage Tank (above ground) - Caustic Tanks?		X
• Storage Tank (below ground)		X
• Container Storage Area		X
• Injection Wells, Sink Holes		X
• Wastewater Treatment Units		X
• Transfer Stations - ask about this (part of unit?)	yes - East & West	X
• Waste Recycling Operations		X
• Other (specify)		X

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

See Table I

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

- C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

See Table I

See Map (Attachment IV) for locations

- 3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a release has occurred (i.e. discoloration of surrounding soil)

date(s) of release

groundwater monitoring data for units not identified in your Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

None Available

F

- 4.) In regard to the prior releases described in number three above, please provide (for each unit) any analytical data that may be available which would describe the nature and/or extent of environmental contamination that exists as a result of such releases. In addition, any information on the concentration of hazardous waste or hazardous waste constituents present in contaminated soil, groundwater or surface water should be attached. Include any information/data (including groundwater monitoring data) submitted to EPA and the State under any other regulatory programs (i.e. Superfund, In place-toxics, etc.) that concerns prior or continuing releases as described above.

See Attachment III for available information on facilities

LF-1, 2, 3

- 5.) If you do not have any record of a SWMU on your site, is there any evidence from soil borings, drilling of groundwater wells, groundwater monitoring results, exploratory pits or any excavations that would indicate the presence of a SWMU or that a release of hazardous waste or hazardous waste constituent has occurred (Please describe the type of activity and observations that led to the discovery)?

Information on SWMUs supplied in response to question #4.

